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Land Management

GRAZING FEE REVIEW AND EVALUATION
UPDATE OF THE 1986 FINAL REPORT

Report
of
The Secretaries
of
Agriculture and The Interior

April 30, 1992

Department of Agriculture
Forest Service

and

Department of The Interior
Bureau of Land Management

**United States
Department of
Agriculture**



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MAY 7 1992

Honorable Sidney R. Yates
Chairman, Subcommittee on
Interior and Related Agencies
Committee on Appropriations
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Pursuant to a directive in the Conference Report on the FY 1992 Interior and Related Agencies Appropriations Act, we submit the enclosed Grazing Fee Review and Evaluation Update of the 1986 Report. The updated report should be used with caution for purposes of reviewing grazing fees.

The highlights that precede the report qualify a number of the report's findings. Specifically, the "mass appraisal" technique for establishing the fair market value for public lands grazing was the subject of controversy in the 1986 report, and is likely to be so in this version. For this reason the updated data are unlikely to resolve that issue.

The report was prepared with the full participation of the Department of the Interior's Bureau of Land Management and the Department of Agriculture's Forest Service, the Economic Research Service and the National Agricultural Statistics Service.

The Office of Management and Budget has no objection to the submission of the updated report to Congress.

A similar letter is being sent to the Honorable Robert C. Byrd, Chairman, Committee on Appropriations, United States Senate.

Sincerely,

David C. O'Neal
Assistant Secretary, Land
and Minerals Management
Department of the Interior
U.S. DEPARTMENT OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY

John Beuter
Acting Assistant Secretary,
Natural Resources and
Environment
Department of Agriculture

Enclosure

JUN 22 1996

CATALOGING PREP.

HIGHLIGHTS OF KEY ISSUES AND MAJOR COMMENTS

A preliminary draft of the updated grazing fee report was reviewed by the livestock industry, conservation groups, and other interested and affected parties. These reviews generated a number of comments (included as attachments to the report) and presented some key issues. These key issues and the major comments are highlighted below.

This updated report did not attempt to introduce new methodologies or new analyses that were beyond that presented in the original 1986 report.

The grazing fee has been the subject of intense controversy for many years. There have been some new developments and some of the data have changed, but the controversy continues.

Significance of Federal Land Forage.

An issue has been raised concerning the information in the updated report that Federal land forage provides 2 percent of the total feed (forage, fed hay, and grain) consumed by beef cattle in the contiguous United States. In the comments it is contended that this may understate the importance of public land forage. Data are offered that indicate that Federal land may contribute as much as 9 percent of the Nation's beef supply. This is based on the interpretation that 9 percent of the Nation's beef supply spend at least part of their time on Federal lands.

This approach to measuring significance is relevant since the Federal lands provide seasonal forage vital to rounding out the yearly feed supply for the entire herd. The updated report recognizes this fact and provides the information that "about one-third of the beef cattle in the 11 Western States graze at least part of the year on public rangelands." Data on the percentage of time that livestock spend on Federal lands in selected States are presented as well.

Size of Livestock Operations Using Federal Lands.

There is an issue of whether livestock grazing on public lands may benefit primarily large operators. From 1982 to 1990, there has been an overall decrease of 4,500 in the number of permittees using Federal lands and a relative increase in the size of operations. However, it should be noted that 90 percent of Bureau of Land Management (BLM) permittees and 81 percent of Forest Service (FS) permittees remain medium- to small-size family operations.

Cost of the Range Management Program.

There are two basic approaches to calculating the cost per Animal Unit Month (AUM) of the livestock grazing program. Figure 1.3 in the updated report shows the cost per AUM calculated on the basis of allocating all range management appropriations to the livestock grazing program. For the FS, this cost is \$3.24 per AUM and for the BLM it is \$3.21 per AUM.

Figure 1.4 shows cost per AUM calculated on the basis of allocating only that portion of the appropriated range management funds that are directly attributable to the livestock grazing program. Each agency used a field assessment of range management costs "with" and "without" livestock grazing to estimate the amount attributed specifically to grazing permit administration, for example.

In the 1986 fee report, the BLM prepared a "with" and "without" livestock grazing cost analysis. The FS has added this analysis to the updated report. The BLM's original approach was adjusted and the two agencies are now consistent in their approach to calculating cost per AUM for the livestock grazing program only. For the FS this cost is \$2.40 per AUM and for the BLM it is \$2.18 per AUM.

Appraised Market Value of Grazing on the Public Rangelands.

The appraisal of the market value of grazing public rangeland was the most controversial aspect of the 1986 fee report. As the comments illustrate, the update has been criticized as well, by western university economists and others. Some of the key points of their criticism are:

1. There was a failure to collect the dollar amount of "onsite factors," such as maintenance, investments, and services on both private leases and public permits.
2. Lease data are inappropriately analyzed (e.g., by averaging the price file data of the categories of leases), data are arbitrarily excluded (e.g., by clipping (removing) the very high and very low priced leases) and inadequate statistical analysis was used to isolated factors affecting value (e.g., by using least squares formulas for sampling the statistical difference in the factors that affect value).
3. There is a lack of sound data base and analysis for concluding that only adjustments from the private land lease rate of 5 percent for "conditions of use" and 10 percent for "prepayment" were appropriate. The 5 percent adjustment for each pricing area was arbitrarily applied because the 5 percent was determined through a comparison of average westwide values.

4. There is not a sufficient basis to conclude that adjustments for factors such as size, water distribution, animal type, and location are not necessary, merely because study of the price data did not show any difference. Had a more advanced statistical technique been used, a difference may have been isolated.
5. In updating the appraised values, there was an insufficient sample of leases on which to draw valid conclusions.

Agency appraisers and the private appraisers that reviewed the 1983 appraisal and updated the appraised values respond to these concerns as follows:

1. The mass appraisal technique analyzes the market to determine the factors that affect value and establish fair market rental value. To the extent that it can be determined that certain factors affect value and that these factors are not comparable between private and public leases, adjustments are made. The mass appraisal methodology does not directly quantify the cost differences in maintenance, for example. It attempts to discover whether there is a difference reflected in the market price for maintenance. Using this methodology, no discernible difference was found for any factors except for "conditions of use" and "prepayment."
2. The conclusions that adjustments of 5 percent for "conditions of use" and 10 percent for "prepayments" are based on both analyses undertaken by the appraisers and their professional judgment. Although statistical analysis was applied, the conclusions are not a direct product of this analysis alone. Professional judgment enters in as well, such as concluding that some factors present on private lands tend to offset other factors present on public lands.

In the experience of the BLM and the FS, establishing a market value for the grazing of livestock on thousands of public land tracts is inherently difficult for several reasons:

1. There is enormous variation in the price of livestock forage in the Western United States. The 1983 appraisal discovered private land lease rates ranging from \$65 to 5 cents per head per month. There is probably as much variation in the market value of public land forage.

2. Unlike the market for wheat, for example, the market for livestock forage is not well developed, is imperfect, and exhibits a host of special factors that can affect values. The market is also restricted due to such factors as base property requirements.
3. There are "conditions of use" on public land permits that are not comparable to any situation on private leases. Although there are public land tracts leased competitively where "conditions of use" are comparable, the market is thin and not representative of the full range of circumstance on public lands.

Two major attempts have been made to deal with these problems and to establish the market value of livestock forage on public lands: the 1966 Western Livestock Grazing Survey (WLGS) and the 1983 mass appraisal approach. The WLGS used a preplanned statistical sampling "economic" approach and explicitly accounted for the nonfee cost differences to operators who lease public lands as opposed to private lands. A market value of \$1.23 per AUM was estimated. The mass appraisal gathered transactions data on close to the entire populations of private leases and drew its conclusions based on a study of the data and on professional judgment.

It should be noted that in these circumstances the conclusions concerning market value are meant to be general values. They must represent the value of all grazing throughout a large area. The \$1.23 was an estimate of the average value, westwide. Similarly, the appraised values represent estimates of the rental of a typical public land grazing unit within each pricing area. Although the \$4.68 per head month in price area 5 is a precise amount, it is necessarily an approximation when applied throughout this large area.

The "mass appraisal" and "statistical economic" approaches each have their strengths and weaknesses. This is apparent when attempts are made to apply them to valuation of public land grazing in the entire Western United States.

Net Returns of Livestock Operations Using Public Land.

While figures 5.3 and 5.4 show an increase from 1982 to 1990 in net returns of livestock operations using public land, the following factors are relevant to the interpretation of the data:

1. The increases were calculated through indexing; no new surveys were conducted.
2. Beef cattle prices were high in 1990, peaked in 1991, and are now on a downward trend (see figure 3.9).

3. Significant indebtedness was incurred in years of low livestock prices. With the current higher prices, operators are now able to retire some of this debt.
4. The debt-to-asset ratio used to calculate interest cost in 1982 and in the updated report was for the entire western livestock industry. The ratio decreased from 20 percent to 10 percent. It is assumed that public land permittees have had a similar decrease in their debt-to-asset ratio; however, a survey specific to permittees would be needed to verify this.

Revenue Projections.

In figure 6.1, revenues are projected on the assumption that all AUM's will be taken at the fee levels of \$1.97 to \$4.85 per AUM. This may not be fully valid because, as fees increase toward the \$4.85 level, there may be some decrease in AUM's taken. Revenue cannot be projected with certainty because the elasticity of demand for public land forage is not known.

The present level of nonuse and the allotment vacancy rate may be relevant to this issue. The amount of nonuse (i.e., the difference between the amount that could be authorized and the actual use) is about 18 percent. This nonuse suggests that in some cases the present fee is higher than the economic value of the forage. Some allotments may be vacant because it is not economical to use them at any price.

Update of the \$1.23 Per AUM Public Rangelands Improvement Act (PRIA) Base Value.

The update of the \$1.23 per AUM PRIA base value resulted in a value of \$2.95 per AUM. This value was derived by indexing the nonfee costs of leasing public land grazing as compared with leasing private land grazing. While the nonfee costs were recalculated through indexing, the levels of physical inputs (e.g., maintenance) were assumed to remain the same.

If this assumption is not correct (e.g., more maintenance is now being performed on public permits as compared to private leases), then the updated value would be altered.

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April 30, 1992

Department of Agriculture
Forest Service

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Department of The Interior
Bureau of Land Management

PREFACE

MANDATE FOR THE GRAZING FEE STUDY

The Public Rangelands Improvement Act (PRIA) of 1978 (P.L. 95-514; 92 Stat. 1803) established the current formula for determining the grazing fee to be charged on public rangelands for a 7-year trial basis from 1978 through 1985. The PRIA required the Secretaries of the Interior and Agriculture to report to Congress by December 31, 1985, ". . . their evaluation of the fee established in Section 6 of this Act [PRIA] and other grazing fee options, and their recommendations to implement a grazing fee schedule [system] for 1986 and subsequent grazing years." The Secretaries submitted their report in February, 1986. Since the PRIA expired in 1985, the PRIA formula has been extended through Presidential Executive Order.

Amendment No. 221 to the 1992 Appropriations Bill for the Department of the Interior and Related Agencies (Forest Service) directs the Secretaries of Agriculture and the Interior to update the 1986 Grazing Fee Review and Evaluation report. The updated report is to be provided no later than April 30, 1992, to the Appropriations committees of the House and Senate, the House Interior and Insular Affairs Committee, and Senate Committee on Energy and Natural Resources.

UPDATING THE 1986 FEE REPORT

The 1986 Grazing Fee Report documented: (1) the relationship of livestock production in the Western States, (2) each Agency's cost of administering grazing permits, (3) the estimated market value of public rangeland grazing, (4) an evaluation of the PRIA fee formula and technical modifications which could be made to the PRIA formula and retain the ability to pay/cost of production concept, (5) alternative fee systems, and (6) the economic effects of fee system options on grazing permittees.

In updating the 1986 Fee Report, the Secretaries and the involved agencies agreed to: not deviate from the methodology used in the 1986 report; use statistically acceptable indexing; and where possible, update report data to 1990 values. It was agreed that text of the report would not be changed except to reflect new data or developments since 1986. The Secretaries also agreed not to address fee policy and to include, with the updated report, comments from the public lands sector of the Western Livestock industry and other interested and affected parties.

Changes in data and text for the 1986 report have been highlighted and/or underlined to facilitate in reading and understanding of this update report.

A copy of the final fee report may be obtained from the Washington Offices of the Forest Service or the Bureau of Land Management as follows:

Director of Range Management
USDA-Forest Service
Auditor's Building 3 South
P.O. Box 96090
Washington, D.C. 20090-6090

or

Chief, Division of Rangeland Management
USDI-Bureau of Land Management
1849 C Street, N.W.
Washington, D.C. 20240

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PART 1 - BACKGROUND FOR GRAZING FEE STUDY

CHAPTER 1. INTRODUCTION

The U.S. Department of Agriculture, Forest Service (FS) and the U.S. Department of the Interior, Bureau of Land Management (BLM) administer livestock grazing on approximately 307 million acres of public rangelands located within the 16 Western States covered by the Public Rangelands Improvement Act (PRIA) of 1978. About 57 percent of this acreage is administered by the BLM and 43 percent by the FS. (Maps showing the location of BLM and FS rangelands are in Appendix B, Figures B.1 and B.2.) Public rangelands, as defined in the PRIA, are those lands administered by the FS or the BLM within the 16 Western States. Public rangelands are also referred to as Federal rangelands within this report to distinguish them from public lands which are leased for livestock grazing by Other Federal agencies and State Governments.

The 1980 Assessment of the Forest and Rangeland Situation in the United States documents that the Western States have about 70 percent of the forests and rangelands in the 48 contiguous States, but they provide 91 percent (720 million acres) of the total public and private range grazed. The public rangelands are divided into more than 30,000 allotments, ranging in size from less than 40 acres to more than 1 million acres.

HISTORICAL BACKGROUND

Grazing Fees and Permit System: Fees were first charged by the FS in 1906 for grazing on Forest Reserves. Fees were not charged on public domain lands (which later became the lands administered by the BLM) until 1936, two years after the passage of the Taylor Grazing Act. A summary of the history of grazing fees on the BLM and the FS lands is shown in Appendix B, Figure B.4.

Grazing fees for the BLM and the FS were established on different bases until 1969, when both Agencies implemented a fee system based on the Western Livestock Grazing Survey (WLGS) of 1966. The value determined through the 1966 WLGS was \$1.23 per AUM. The goal of both Agencies was to bring their fees to the \$1.23 level in 10 years by a series of 10 equal adjustments, while at the same time adjusting for the current level of private grazing land lease rates. The fee system lasted from 1969 until the passage of the PRIA in 1978. Four fee moratoriums occurred in this period as a result of congressional or Executive actions. The fee system established under the PRIA was the first to be legislated by the Congress instead of being established by the Secretaries of Agriculture and the Interior.

Grazing use on the public rangelands was originally established on the basis of prior use. Other qualifications which evolved from laws governing BLM range management policy and FS policy currently include: (1) ownership or control of livestock and sufficient base ranch property to provide feed for animals during the time they are not grazed on public rangelands, and (2) need for additional grazing to round out yearlong ranching operations.

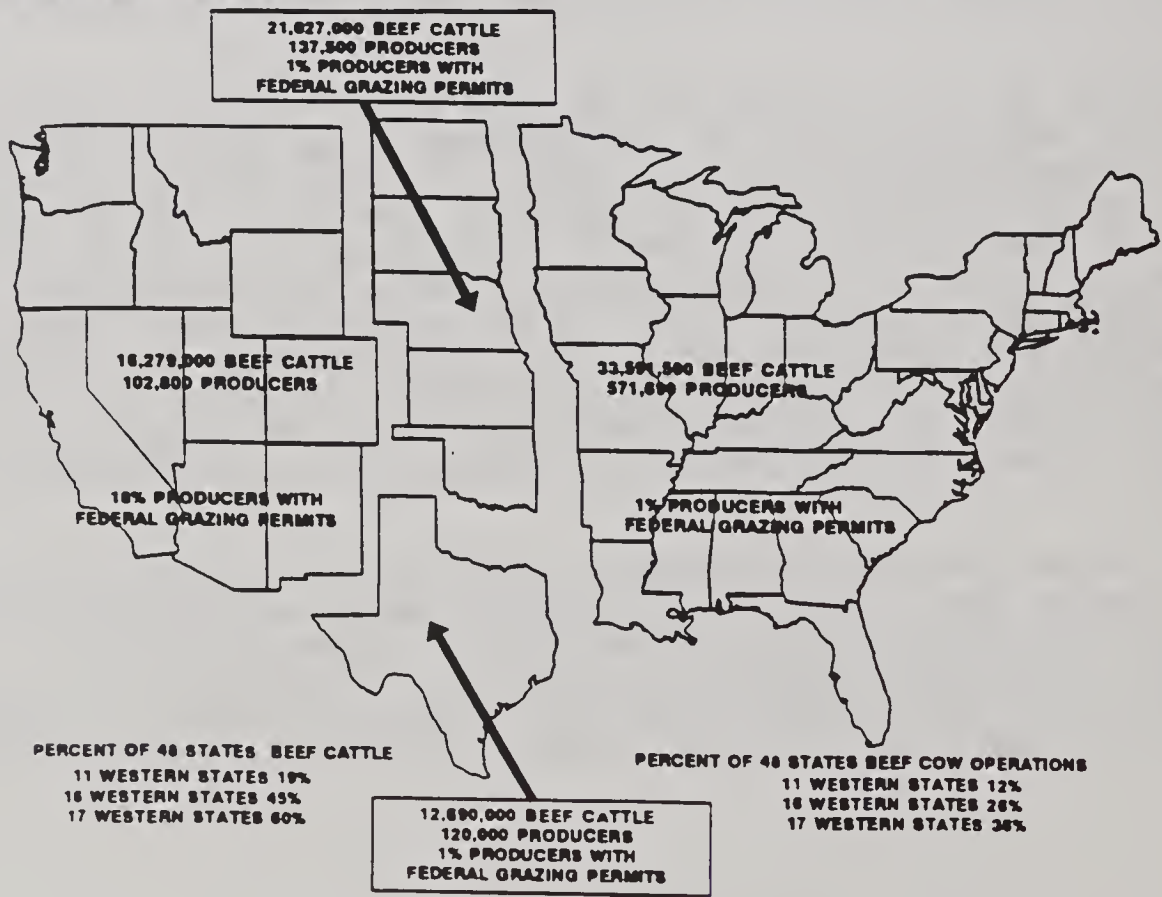
The FS and the BLM require that permittees manage livestock to conform to prescribed plans, developed in consultation with permittees, which specify the number of animals to be grazed and the period during which grazing can occur.

Grazing permits or leases are for a 10-year period. Generally, current holders of the permits have first priority for renewal.

Western Livestock Industry: Forest Service and BLM grazing statistical records showed that during the 1990 grazing year, approximately 23,600 farmers and ranchers grazed livestock on the public rangelands, with about 14 percent of these producers grazing livestock on both FS and BLM lands. These farmers and ranchers, when compared with the USDA Cattle Inventory report represented 10 percent of the 240,300 livestock producers in the 16 Western States and 3 percent of the 932 thousand cattle operations in the 48 contiguous states. In 1990, 20.2 million AUM's of grazing were permitted on public lands in the Western States. This level of permitted use represented 7 percent of the 48 contiguous States total forage (pasture, rangelands and crop aftermath), and 2 percent of the total feed (forage, fed hay and grain) consumed by beef cattle in the contiguous States. (An Analysis of the Range Forage Situation in the United States: 1989-2040, a technical document supporting the 1989 USDA Forest Service RPA (Resource Planning Act) Assessment of the Forest and Rangeland Situation in the United States, 1989).

The distribution of beef cattle, beef cattle producers, and permittees is shown on Figure 1.1. The number of FS animal months (AM's) and BLM AUM's by State are shown in Appendix B, Figure B.6. An explanation of the conversion factors used is also provided in Appendix B, Figure B.6.

Figure 1.1: Distribution of Beef Cattle and Producers in the United States, 1990



1/ PRODUCERS ARE BEEF COW OPERATIONS, USDA NAHS, 1990

While the Western States do not dominate the Nation's beef cattle industry, the relationship between the western livestock industry and the availability of public range is important both regionally and locally (Clawson and Held, 1957). The availability of public rangelands helps promote the stability of family farms and ranches. The availability of public range forage contributes to the livelihood of full-time operators who are substantially dependent on it for livestock forage. For part-time operators, the public range may help maintain livestock operations that supplement family income. In many western communities, livestock farming and ranching operations continue in their traditional role of providing the primary economic base.

The importance of public range also varies by the type of animal being grazed. Nearly half the sheep producers who own more than 2,500 head of sheep use public range, which provides about 42 percent of their annual forage requirements. An Analysis of the Range Forage Situation in the United States: 1989-2040, (a technical document supporting the 1989 USDA Forest Service RPA (Resource Planning Act) Assessment of the Forest and Rangeland Situation in the United States, 1989), showed that together the FS and the BLM supplied 12 percent of the forage consumed by beef cattle in the 16 Western States, and 25 percent of the forage consumed by beef cattle in the 11 Western States. About one-third of the beef cattle in the 11 Western States graze at least part of the year on public rangelands (USDA-FS, 1980).

Public grazing is a highly significant portion of total grazing in some Western States. For example, 88 percent of the cattle produced in Idaho, 64 percent in Wyoming, and 63 percent in Arizona graze at least part of the year on public rangelands. Dependency on public grazing lands by permittees is derived from livestock enterprise budget data developed by the USDA Economic Research Service (Gee, 1984). The dependency of both the cattle and sheep operators on public land grazing is discussed under the Permittee Dependency on Federal Forage section in Chapter 5.

In numerous local areas in the West, the operating size of many livestock operations often is affected by the amount of Federal range available during seasons of feed shortage on privately owned lands. Such critical periods may occur in the fall prior to hay feeding, in the summer when forage on private lands is low in nutritive value compared to forage on public ranges at higher elevations, and in the spring when private lands are needed to produce next winter's feed.

The size of the livestock operations dependent upon the public rangelands varies. Based on FS and BLM records, Figure 1.2 shows public rangeland grazing by herd size for cattle and horse permittees for both the FS and the BLM. In 1990, while 45 percent of BLM permittees have less than 100 head, only 35 percent of the FS permittees have less than 100 head. About 10 percent of the largest BLM permittees (over 500 head) use 47 percent of the BLM AUM's, while the 19 percent of the FS group with over 500 head graze 48 percent of the National Forest AUM's (FS Statistical Records; Gee, 1984; and BLM Grazing Authorization and Billing System.)

In 1990, 1 percent of BLM cattle allotments were vacant while 4 percent of FS cattle allotments were vacant. Vacancy is more pronounced in sheep allotments (1 percent in BLM allotments and 10 percent in F.S. allotments) than in cattle allotments. Vacancy by Agency and State is shown in Appendix B, Figure B.5. Vacancy is defined as allotments that have not had any authorized grazing use for 3 years as distinguished from total authorized nonuse for a year or more, or varying amounts of nonuse on a recurring basis.

In 1990, authorized nonuse averaged about 18 percent of actual use for both Agencies.

Figure 1.2: Distribution of Cattle and Horse Operators by Herd Size, 1990

Herd Size	Number of Permittees (%)		Number of AUM's (%)	
Bureau of Land Management				
Less than 100	8,000	(45)	1,301,300	(12)
100 to 500	8,000	(45)	4,446,000	(41)
<u>Over 500</u>	<u>1,800</u>	<u>(10)</u>	<u>5,096,700</u>	<u>(47)</u>
BLM Total	17,800	(100)	10,844,000	(100)
Forest Service				
Less than 100	3,200	(35)	864,400	(11)
100 to 500	4,200	(46)	3,222,000	(41)
<u>Over 500</u>	<u>1,700</u>	<u>(19)</u>	<u>3,772,100</u>	<u>(48)</u>
FS Total	9,100	(100)	7,858,500	(100)
FS Total converted to AM's 1/, 2/			6,548,750	
Total for Billing Purposes			26,900	3/
			17,392,750	

1/ For FS billing purposes, convert AUM's to Animal Months (AM's) by dividing by a factor of 1.2 (Sources: FS Statistical Records; Gee, 1984; and BLM Grazing Authorization and Billing System.)

2/ BLM AUM equal to FS AM.

3/ Fourteen percent of permittees have BLM and FS permits, therefore the total number of operators with permits is 23,645.

REVENUES AND COSTS OF RANGELAND MANAGEMENT

Distribution of Receipts: Permittees and lessees are charged for public rangeland grazing use according to the number of AUM's of forage they are authorized to use. Analysis of FS and BLM fiscal receipts reveals that in Fiscal Year 1990, grazing fee collections totaled \$27,035,000, which was distributed as follows: \$13,517,000 was deposited to the Range Betterment Fund; \$5,534,000 was returned to the States and counties in which it was collected; \$897,000 was allocated for forest roads and trails; and \$7,086,000 was retained by the U.S. Treasury.

Grazing fee receipts are distributed according to legislative requirements. The FS distributes its grazing fee receipts as follows: 25 percent to the States for distribution to the county of origin for roads and schools, 25 percent to the U.S. Treasury, and 50 percent into the Range Betterment Fund to be appropriated the following year. The Range Betterment Funds are returned to the Forest where the fees were collected and the remaining amount distributed among the Forests at the discretion of the Regional Foresters.

Grazing fees collected by the BLM are distributed under Section 3 (grazing permits) of the Taylor Grazing Act of 1934, as follows: 50 percent to the Range Betterment Fund; 12.5 percent to the States where the fees were collected; and 37.5 percent to the U.S. Treasury. Under Section 15 (grazing leases) of the Act, 50 percent of the fees collected are distributed to the

Range Betterment Fund and 50 percent are returned to each State where the fees are collected. Range Betterment Funds are returned to the BLM District where they were collected. Although the BLM State Directors may redistribute funds among Districts to meet short-term needs, each District must receive its full proportional share of Range Betterment Funds within a 5-year period.

The FS and the BLM use the Range Betterment Funds, other appropriated funds, and contributions to improve the public rangelands. This is accomplished through implementation of intensive grazing management methods and initiation of improvement practices, such as brush control, seeding, fencing, and the development of water sources.

Cost of Range Management Program: In addition to the funds that the Agencies spend on range improvements, the cost elements involved in administering grazing permits are allotment planning and inventory, use supervision and management, and program management. Figure 1.3 shows by agency the average AUM costs for these elements for 1990. The average cost was \$3.22 per AUM as opposed to a 1990 grazing fee of \$1.81 per AUM.

Figure 1.3: BLM and Forest Service Direct Costs and Grazing Fee Receipts, 1990 1/

Cost/Receipt Component	----- BLM ----- 1990	----- FS----- 1990
------(000's dollars)-----		
Allotment Planning and Inventory	\$ 4,857	\$ 6,279
Grazing Management	\$23,398	\$17,603
Range Improvements 2/	\$15,250 3/	\$ 6,418 4/
Total Costs	\$43,505	\$30,300 5/
Total Receipts	\$18,061	\$ 8,974 6/
State/County Shares 7/	\$ 3,291	\$ 2,243
Net Federal Receipts	-\$28,735	-\$23,570
------(\$/AUM)8/-----		
Allotment Planning and Inventory	\$0.36	\$0.67
Grazing Management	\$1.73	\$1.89
Range Improvements	\$1.13	\$0.68
Total Costs Per AUM	\$3.21	\$3.24

1/ Based on Agency appropriations

2/ In addition to livestock grazing, range improvement expenditures benefit wildlife, riparian areas, watershed, etc.

3/ Includes range betterment funds and general appropriations.

4/ Excludes fee credit for conservation practices on National Grasslands.

5/ Total Forest Service Range Management Appropriations was \$37,881,000, including Range Betterment Fund, the difference includes program costs not associated with range management in 16 Western States.

6/ National Forest receipts only

7/ State and County Share of Federal Grazing Fee Receipts.

8/ National Forest System costs and AUM's (includes 1.4 million National Grassland AUM's)

BLM and Forest Service Rangeland Program Costs "With and Without" Livestock Grazing, 1990: Figure 1.4 shows the cost calculations "with and without" permitted livestock grazing on BLM and Forest Service administered rangelands. The cost assumptions and methodology used in this analysis differ from the approach used in Figure 1.3, and are based on the concept that certain basic rangeland program activities and costs would be required regardless of whether there is permitted livestock grazing use. These include such legislatively defined requirements as providing baseline inventory data, monitoring and reporting ecological range condition, and preventing and detecting unauthorized grazing use. In 1990, the cost of these activities for the BLM were \$13.9 million, and \$7.9 million for the Forest Service. These costs are the rangeland ecology component of each agency's range management program's. These costs are subtracted from total rangeland program cost to derive each agency's cost attributable solely to livestock grazing. Cost items specifically attributable to livestock grazing include: Permit administration; issuing permits and billing notices; developing annual operating plans; developing and updating AMP's; NEPA Documentation; issuing or processing decision/appeals; project planning for range improvements, and meeting with permittees or attending livestock association meetings.

Figure 1.4: BLM and Forest Service Rangeland Program Cost "With and Without" Livestock Grazing, 1990

	----- BLM -----			----- FS -----		
	Total	Without 1/	Attri- butable to Live-	Total	Without 1/	Attri- butable to Live-
	Rangeland	Livestock	stock	Rangeland	Livestock	stock
	Program	Grazing	Grazing	Program	Grazing	Grazing
	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)
Rangeland Management	\$28,255	\$8,328	\$19,927	\$23,882	\$7,270	\$16,612
Cost per AUM	\$2.08		\$1.47	\$2.56		\$1.78
Range Improvements	\$15,250	\$5,597	\$9,653	\$6,418	\$ 608	\$5,810
Cost per AUM	\$1.13		\$0.71	\$0.68		\$0.62
Total Program	\$43,505	\$13,925	\$29,582	\$30,300	\$7,878	\$22,422
Cost per AUM	\$3.21		\$2.18	\$3.24		\$2.40

1/ This cost is the proportion of the 1990 appropriation that is attributable to a rangeland ecology program. It is not the optimum amount needed to meet rangeland ecology objectives.

While FS and BLM range program costs are separable, they also may be viewed jointly. Combined FS and BLM costs are shown in Figure 1.5.

Figure 1.5: Combined BLM and Forest Service Direct Costs and Grazing Fee Receipts, 1990

Cost/Receipt Component	1990
	----- (000's dollars) -----
Allotment Planning and Inventory	\$11,136
Grazing Management	\$41,001
Range Improvements	\$21,668
Total Costs	\$73,805
Total Receipts <u>1/</u>	\$27,035
State/County Shares <u>2/</u>	\$ 5,534
Net Federal Receipts	-\$52,305

1/ National Forest and BLM receipts only.

2/ Western States and Counties share of Federal Grazing Fee Receipts

Permittee Investment In Range Improvements: Permittees and lessees may cooperate with improvement investments through contributions of money, time, labor, and materials. The regulations for each Agency provide for private investment, when in the public interest. Permittees, thus, have an opportunity to invest their own capital where they can realize capital recovery and profit on their investments. Forest Service grazing statistical records and BLM's fiscal records (Job Documentation Reports) showed that permittee combined contributions were highly variable but averaged \$0.17 per AUM toward range improvement investments in 1990 under the PRIA (Executive Order) fee formula concept. (See Figure 1.6.)

Figure 1.6: Permittee Contributions for Range Improvements, 1989-1990

Agency	----- Dollars Contributed (000's dollars) -----		
Agency	<u>1989</u>	<u>1990</u>	<u>Total</u>
BLM	\$2,161	\$1,522	\$3,683
FS	\$1,486	\$1,454	\$2,940
Total	\$3,647	\$2,976	\$6,623
	-----Dollars per AUM -----		
BLM	\$0.20	\$0.14	\$0.34
FS	\$0.23	\$0.22	\$0.45
Average	\$0.21	\$0.17	\$0.38

Both Agencies require permittees and lessees to maintain fences and other structural improvements that benefit livestock on grazing allotments. For the years 1989 to 1990, FS grazing statistical records reported that the National Forest permittees in the 16 Western States spent an average of \$0.19 per AUM each year on maintenance of range improvements. (Maintenance expenditures by Forest Service Region are shown in Appendix B, Figure B.7. Similar data are available for the BLM.)

Permittee cooperation is an essential element in implementing improved grazing management systems. Maintenance of improvements by the range user allows the limited appropriated funds (including Range Betterment Funds) to be used for new construction. This policy allows private investment and hastens the improvement of public rangeland condition.

LAW AND POLICY THAT GUIDE FEES

Figure 1.7 lists the laws that guide the Administration's approach to grazing fees. Several of the laws described refer to fees that are "reasonable." Many ranchers grazing livestock on the public rangelands believe that a reasonable fee must take into consideration the costs of purchasing a public grazing permit (from the existing permit holder) as a reasonable cost of grazing public lands. In 1968, Pankey Land and Cattle Company filed suit against the Secretaries of the Interior and Agriculture, seeking an injunction against the new fees claiming they failed to meet the legal requirement of reasonableness because they failed to consider the costs of the permit. The U.S. District Court for New Mexico held in favor of the Secretaries, ruling that the Agency had considered all factors "related to the reasonableness of the fees." The courts also ruled that the Government was not obligated to compensate permittees for actions which reduce the permit value.

Figure 1.7: Laws That Guide Grazing Fee Policy

Date	Law	Policy Statement
1986	Executive Order	<u>(BLM and FS) Indefinitely extended the PRIA fee formula with a minimum of \$1.35 per AUM. "Any and all existing rules, practices, policies, and regulations relating to the administration of the formula for grazing fees in section 6(a) of the Public Rangelands Improvement Act of 1978 shall continue in full force and effect." The BLM and FS interpret the Executive Order to mean indefinite extension until Congress acts.</u>
1978	Public Rangelands Improvement Act	(BLM and FS) Established a fee on a trial basis, which Congress determined would represent the economic value of the land to the user. In establishing a fee based on economic value, Congress stated that "to prevent economic disruption and harm to the western livestock industry, it is in the public interest to charge a fee for livestock grazing . . . which is based on a formula reflecting annual changes in the costs of production [and beef prices]."

Date	Law	Policy Statement
1976	Federal Land Policy Management Act (FLPMA)	(BLM) Declared that it is a general policy that ". . . the United States receive fair market value of the use of public lands and their resources unless otherwise provided by statute." The FLPMA also required the Secretaries to study the grazing fee issue and in making the study, "take into consideration the costs of production, . . . differences in forage values, and other factors which relate to the reasonableness of such fees."
1952	Independent Offices Appropriation Act	(BLM) and FS) required agencies that provided goods and services to "be self-sustaining to the full extent possible... [and for the fees charged] to be fair and equitable taking into consideration direct and indirect cost to the Government, value to the recipient, public policy or interest served, and other pertinent facts" In interpreting this law, Office of management and Budget, Circular 25, states "where federally owned resources or property are leased or sold, a fair market value should be obtained. Charges are to be determined by the application of sound business management principles,...in accordance with comparable commercial practices. Charges ... may produce net revenues to the Government."
1934	Taylor Grazing Act	(BLM) Provides for payment of a "reasonable fee." The Secretary of the Interior is to account for the "extent to which such districts yield public benefits over and above those accruing to the users of the forage resources for livestock purposes."
1897	Organic Act	(Forest Service) "The Secretary of Agriculture should make such rules and regulations to regulate their [forests] occupancy and use..."

PRIA EVALUATION REQUIREMENTS

In 1978, the PRIA established the formula for determining the grazing fee to be charged on the public rangelands. The formula, which retained the 1966 base value of \$1.23, is adjusted by annual changes in the private grazing land lease rates together with annual fluctuations in the costs of beef production and the prices received for beef. (See Chapter 3 for explanation of the formula.) By including the indexes of the costs of livestock production and beef cattle prices, Congress intended to implement a formula based, in part, upon a permittee's ability to pay. The House Report No. 95-1122, "Improving the Range Conditions of the Public Grazing Lands," House Report stated that this would help prevent ranchers who depend on public land use from being forced out of business by the combined pressures of high production costs and low beef prices. The report went on to say that a lower fee would contribute to improved range condition by

encouraging private investment and by discouraging overgrazing and trespassing.

The PRIA formula, however, was not exempt from the public controversy traditionally surrounding public land grazing fees. In House Report No. 95-1122, the House Committee on the Interior and Insular Affairs acknowledged and responded to the controversy in the following passage:

"The Committee is aware, however, that many groups and individuals concerned with the improvement of the range disagree with the concept of pegging grazing fees to beef prices and the ranchers' ability to pay, and do not believe lower fees will eliminate overgrazing . . ."

"To accommodate these concerns, the committee agreed to put its formula on a 7-year trial basis only, from 1979 to 1985. This 7-year trial period will give all sides an opportunity to study the effects of tying the fee to beef prices, and also allow the Secretaries to refine their data on the value of Federal grazing lands as compared to privately owned lands."

In March 1986, at the end of the trial period, the Secretaries submitted their review and evaluation report of the PRIA trial fee formula to the Congress. On February 14, 1986, Executive Order 12548 indefinitely extended the PRIA fee formula with a minimum of \$1.35 AUM to allow Congress time to take action. Therefore, no recommended fee schedule for 1986 and subsequent grazing years was submitted with the 1986 Fee Report.

The Specific tasks undertaken in the grazing fee evaluation report were:

1. an appraisal of the public rangelands to estimate the rental value of public lands for grazing;
2. an evaluation of the PRIA grazing formula with specific emphasis on the forage value index, the beef cattle price index, and the prices paid (cost of production) index;
3. an identification and evaluation of other governments' grazing fees; and,
4. an analysis of the economic impact of grazing fee levels on the public land-based livestock industry, selected counties, and States in the Western United States.

Information on purchasing copies of the background studies conducted in support of the fee study is provided in Appendix B, Figure B.3.

CHAPTER 2. APPRAISED MARKET RENTAL VALUE OF GRAZING ON PUBLIC RANGELANDS

PURPOSE OF GRAZING MARKET RENTAL APPRAISAL

In the PRIA, Congress legislated a grazing fee formula and established fair market value of grazing lands by legislative definition. In House Report No. 95-1122, Congress charged the Secretaries to "refine the data on the value of the public rangelands as compared to privately owned rangelands." In response to the congressional charge, the FS and the BLM conducted a grazing rental market value appraisal of public rangelands. The two primary objectives of the appraisal were: (1) to establish a market value, which is the amount a livestock operator would pay for grazing use on the public lands if these lands were offered on the open market, and (2) to provide the information needed to compare that value with the public land grazing fees now derived from the current fee formula established by the PRIA.

DEFINITION OF FAIR MARKET RENTAL VALUE USED IN THE APPRAISAL

The American Institute of Real Estate Appraisers states that "an appraisal is an unbiased estimate of the nature, quality, value, or utility of an interest in, or aspect of, identified real estate, . . . is based on selective research into appropriate market areas; assemblage of pertinent data; the application of appropriate analytical techniques; and the knowledge, experience, and professional judgment necessary to develop a conclusion that is appropriate to the problem." Fair market rental value is defined as "The amount in cash, or in terms reasonably equivalent to cash, for which in all probability the grazing use would be rented or leased by a knowledgeable owner willing but not obligated to rent or lease to a knowledgeable renter or lessee who desired but is not obligated to lease." It was also defined as "The amount that livestock owners would probably pay for the grazing use if it were offered for rent or lease in the open market" (Brownell and Tittman, 1984a).

FUNCTION OF THE APPRAISAL

The grazing market rental appraisal was undertaken to: (1) provide market data from which to compare values obtained from the USDA-National Agricultural Statistics Service Annual June Enumerative Survey (JES) of Private Grazing Land Lease Rates (the Forage Value Index); (2) compare the closeness of PRIA fee rates, which include factors of cost of production and ability to pay, with comparable private grazing land lease rates obtained in a free, open market, and (3) place a market value on the occupancy, use, and consumption of public rangeland forage where the leasing of grazing privileges through permit or lease is a form of purchasing resources.

A market value appraisal is an accepted and theoretically correct method for determining the value of land resources used in the production of livestock products. The market approach uses the "comparative lease method" to estimate current market values of resources and land services. The Bureau of Indian Affairs (Department of the Interior) has used this methodology extensively. The Department of Defense (Army and Navy) also uses this methodology to determine rental value for other Federal grazing lands leased by the Army Corps of Engineers or the Navy. The method used in the FS/BLM appraisal was mass data appraisal, which provided a reservoir of market and related economic data for a specified area.

SCOPE OF THE 1983 APPRAISAL.

The field work portion of the appraisal took 17 months to complete (July 1981 to November 1983). The field appraisers interviewed approximately 100,000 persons to identify who leased grazing lands. Those interviewed included bankers, appraisers, farm management specialists, loan officers, grazing permittees, nonpermittee livestock producers, etc. The appraisers developed lists of persons, from those interviewed, who leased grazing lands which they believed represented 80 to 90 percent of the transactions within the area surveyed. These interviews resulted in a transaction data base that contained 11,675 records. The 11,675 records contained 7,246 usable observations of different prices reflecting the results of open market negotiations between lessors and lessees for grazing use of lands by cattle, horses, yearling cattle, and sheep.

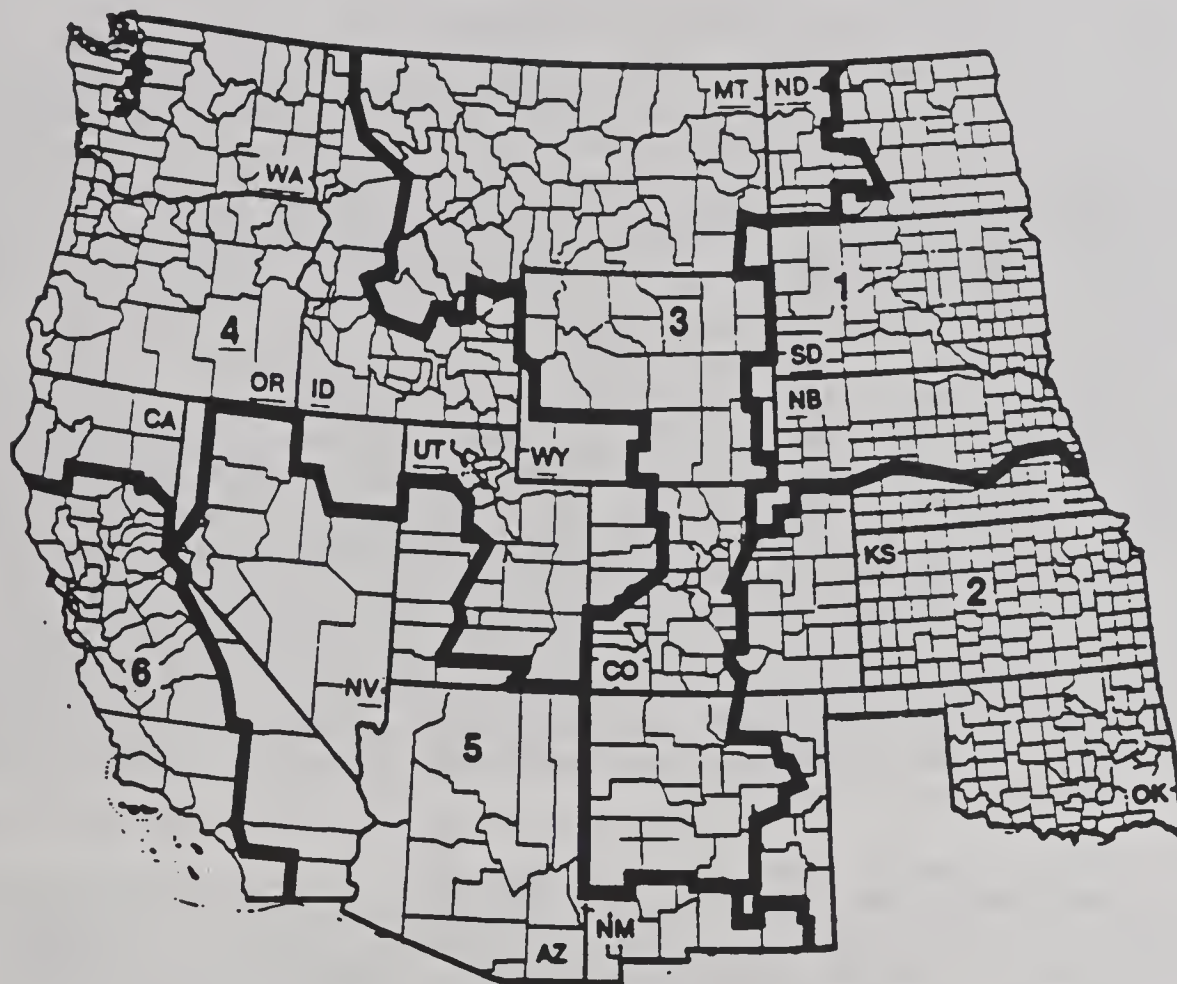
The appraisal covered 16 Western States, plus two counties in Texas, which were divided into six pricing areas (see Figure 2.1). Criteria for selecting the boundaries of the pricing areas included the following, in order of priority: (1) mean county prices for mature cattle and horses; (2) consideration of the natural vegetation, which reflects the influence of soils, climate, and land features; (3) physical or geographic features; and, (4) political or administrative boundaries. Data on 99 physical characteristics and lease terms and conditions that could affect value were collected for each lease. The 99 items were reduced or combined to form 81 potential value determining factors. The most important factors are shown in Appendix B, Figure B.8.

THE 1983 APPRAISAL PROCESS

The appraisers used appraisal techniques that acknowledged a wide range of conditions on individual allotments on the public rangelands, and recognized the impossibility of accounting for the differences between individual allotments or tracts. A universe of market transactions involving private leased rangelands, subleased public rangeland administered by the BLM and FS and other Federal rangeland properties as of a given date were analyzed in a uniform manner. The appraisal used standard methodology and employed a common reference for data. This process is referred to as mass appraising and allows for statistical analysis of data for determining factors that influence value between the subject properties and comparable transactions. This process may use statistical data when (1) it shows high levels of correlation between factors and price, and (2) the sample size is sufficient to be reliable. The appraisers applied such statistical analysis and found some correlations of factors with value, but did not find any that were statistically significant. (See the Statistical Appendix to the Appraisal, Volume 2, Exhibit 13-10.) Therefore, they did not base the adjustments in the appraisal on the results of the statistical analysis of the factors and price data.

The value estimates presented do not represent the "site specific" fair market grazing rental value of any individual allotment. Rather, they are intended to represent a reasonable estimate of the mean average rental value of grazing on the public rangelands. Appraised market value reflects the highest price that a property will bring if exposed to sale or rent in the open market. There must be a willing seller (or lessor) and a willing buyer (or lessee), both knowledgeable of all uses of the property and neither being under abnormal pressure. The quantification of appraised value is based on this concept of market value. In the grazing rental appraisal, it is determined as an average value that would be realized from rental of all allotments available for grazing.

Figure 2.1: Westwide Pricing Areas: Mature Cattle, Horses, and Yearling Cattle--Pricing Areas 1 through 6; Sheep--Entire Westwide Area



BLM AUM's and Forest Service AM's by Pricing Area*

Pricing Area	BLM AUM's	FS AM's	total	Percent of total
1	196,558	194,424	390,982	2%
2	351,538	11,261	362,799	2%
3	4,352,997	2,782,956	7,135,953	33%
4	4,112,507	2,226,620	6,339,127	29%
5	4,351,845	2,673,227	7,025,072	33%
6	116,813	214,620	331,433	2%
Total	13,482,258	8,103,108	21,585,366	100%

Numbers of AUM's and AM's reported in the appraisal, 1982 data BLM AUM's correspond to Forest AM's.

In arriving at an estimate of the fair market rental value for grazing on the public rangelands within each pricing area, the use and conditions on the private leased lands were compared to the use and conditions on the public rangelands. Based on a pure "qualitative analysis" of different factors, it was the appraisers' judgment that any advantage the lessee of private lands might have over the public rangelands permittee/lessee, as a result of the general lack of stipulations or restrictions on the private lease, was at least partially offset by the guaranteed tenure, the rights of appeal, and the option of nonuse for 3 years at no cost that were afforded the public rangeland permittees/lessees.

The analyses showed there were different prices being paid for different kinds and types of animals. They also showed there were differences in prices being paid in different geographic areas that could be attributed to broad differences in various factors that included location, seasons of use, and carrying capacity or quality of range. For example, prices being paid for typical spring-summer-fall grazing on lands stocked at 1-10 acres per AU in South Dakota were 2 to 3 times the prices paid for year-round grazing on lands in the southwestern desert areas of New Mexico, Arizona, and Nevada on lands stocked at 20 to 40 acres per AUM.

The Agencies' appraisers, in consultation with the contracted private review appraisers, concluded that the most appropriate and valid measure of the rental value of public land grazing was the average price of the negotiated leases. The value estimates were based on indications provided by the 7,246 observations of the negotiated leases. Because of the wide range of prices shown by these observations and the skewness of rental prices to the high side, they further concluded the need to remove the extremes of highs and lows in prices by excluding the top and bottom 15 percent of the reported prices. This left 70 percent of the data as the basis for estimating the fair market rental. Eliminating the extreme values at each end of the range in this manner reduced the skewness and resulted in lowering the appraised market value an average of 5 percent.

The appraisers also compared the westwide average prices paid on private leased lands to the westwide average prices paid for over 600 competitive and/or negotiated leases on approximately 9 million acres of Federal lands. The leases of Federal lands included competitive leases of military reservations, wildlife refuges, reclamation lands, and subleases of Federal grazing permits, including intermingled public and private rangelands, where all or part of the public land is administered by BLM or FS. These transactions did not involve the landowner's care or management of the livestock. This showed an average price of \$6.53 per month for the Federal lands compared to \$6.87 for Nonfederal lands, indicating a -5 percent lower value for grazing on Federal lands than for the Nonfederal lands. The -5 percent difference was attributed to a number of factors, including the general conditions of the permits or leases, differences in costs of operation and desirability of use, etc.

The appraisers recommended a further adjustment because of the different payment schedules that were authorized for use on public rangeland permits/leases. The appraisal data showed that private market transactions were discounted approximately 10 percent for advance payment. Generally, both Agencies required partial or full payment in advance. The additional -10 percent adjustment together with that due to the indicated 5 percent lower market value of public grazing land leases and subleases resulted in a total -15 percent adjustment from the private grazing rates. No adjustments were made for factors such as size (in acres, AUM's, number of head), quality of range (carrying capacity or stocking rate), improvements, availability and

distribution of water, etc., for the following reasons: (1) the transactions showed no difference in prices paid because of differences in these factors, and/or (2) the public rangeland allotments within each of the pricing areas exhibited broad ranges in physical characteristics and the private leased lands exhibited the same general, broad ranges in these characteristics or factors.

The mass appraisal technique assessed comparability for similar leased public and private rangelands but did not identify differences between specific leased or rented areas. The mass appraisal was, therefore, an indicator of the mean average prices paid in the market for grazing of rangelands, and was a reliable indicator of the average market value of public leased rangelands.

SCOPE OF THE 1992 APPRAISAL UPDATE

A contract was let to David J. Lau, MAI, in association with Robert J. Mitchell, MAI to update to January 1, 1992, the Grazing Rental Appraisal prepared for the USDA Forest Service (FS) and USDI Bureau of Land Management (BLM) as of October 1, 1983 (Appendix C). Their efforts to update the original appraisal are based upon personal interviews with a number of Grazing lessees identified in the 1983 Grazing Rental Appraisal. They interviewed 260 private grazing lessees in the 17 Western States that had provided information in the original report and acquired an additional 56 leases from Government agencies active in competitive grazing leasing on lands under their jurisdiction. The appraisers interviewed over 100 State and Federal officials knowledgeable in the market of grazing leases and a number of investors and professional appraisers that are active in the market place. This information was used in the analysis of current market activity, leading to conclusions as to the Private Land Leasing Rate for grazing, and resulted in an estimate of appraised value of grazing public rangeland. The value conclusions include consideration for the "conditions of use" and "terms of payment" for grazing BLM and FS lands.

1992 APPRAISAL PROCESS AND VALUE CONCLUSIONS

The appraisers present data reflecting the economic conditions including changes in both farmland prices and beef cattle prices over the period between 1983 and the January 1, 1992, date of the value conclusions. They conclude that there is no discernable linkage between farmland prices and grazing rental rates, but there is an industry professed linkage between beef cattle prices and the rates paid for leased grazing. The indicated number of beef cattle in the 16 Western States has dropped approximately 12.4 percent over the 1983 to 1990 time frame while prices for cattle have risen a cumulative \$19 per hundred weight or 74 percent over that same time frame. Drought and other factors have had a direct affect on grazing rates.

The appraiser concluded that the adjustments reflected in the 1983 appraisal to indicate the relationship of the private land lease rate to the "conditions of use" and terms of the public grazing permit were valid as of the January 1, 1992, date of value. They used the downward adjustment of -5 percent for the "conditions of use" of the public permit and a downward adjustment of -10 percent for the cash in advance terms, for a total downward adjustment of -15 percent to account for the conditions and terms of the public grazing permits as it relates to the private unserviced grazing leases.

The 17 Western States that are encompassed by the 1983 appraisal and current update include: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming.

The value conclusions presented by the appraisers are consistent with the pricing areas identified in the 1983 appraisal. The pricing units are also expressed in a consistent manner with the 1983 report, as Head-Month or Pair Month (HD-MO/PR-MO) by either mature Cattle and Horses or Yearling Cattle (Under 18 months of age).

Figure 2.2. presents for each of the six pricing areas estimates of the average private land lease rate and the estimated average appraised market value of grazing on the public rangelands, with recommended adjustments for advance payment for mature cattle and horses, yearling cattle, and the westwide price for sheep, as of January 1, 1992.

Figure 2.2: Appraisal Value Conclusions (\$ Per Head or Pair Month), 1/1/92

Price Area	Private Land Lease Rate	Appraised Market Value of Grazing on Public Rangelands
MATURE CATTLE & HORSES (over 18 months of age)		
1	\$12.00	\$10.26
2 <u>1/</u>	\$ 7.50	\$ 6.39
3	\$ 9.00	\$ 7.74
4	\$ 7.50	\$ 6.39
5 <u>1/</u>	\$ 5.50	\$ 4.68
6	\$ 8.00	\$ 6.85
YEARLING CATTLE (Under 18 months of age)		
1	\$ 9.00	\$ 7.74
2 <u>1/</u>	\$ 6.75	\$ 5.76
3	\$ 7.00	\$ 6.03
4	\$ 6.80	\$ 5.85
5 <u>1/</u>	\$ 5.50	\$ 4.68
6	\$ 5.60	\$ 4.77
SHEEP		
Westwide <u>2/</u>	\$ 1.10	\$ 0.95

1/ Contract appraisers determined no change from 1983 appraised values.

2/ Contract appraisers were unable to update these values due to lack of data.

Part 2 - EVALUATION OF ALTERNATIVE GRAZING FEE SYSTEMS

CHAPTER 3. CURRENT (PRIA) FEE SYSTEM

BASIS OF FORMULA

The PRIA formula consists of a base value of \$1.23 per AUM that is updated annually through a series of indexes that measure changes in the private grazing land lease rates, the price of beef cattle, and the costs of livestock production. The base period for the indexes is 1964 to 1968. The PRIA formula is:

$$\text{Calculated Fee (CF)} = \$1.23 \times \frac{\text{FVI} + \text{BCPI} - \text{PPI}}{100}$$

Where:

CF	=	The Calculated Fee to be charged, which Congress defined as fair market value, which is the estimated economic value of livestock grazing to the user, and where annual increases or decreases in the fee are limited to a plus or minus 25 percent of the previous year's fee.
\$1.23	=	The base value established in 1966 through the Western Livestock Grazing Survey (WLGS).
FVI	=	The Forage Value Index, an index of annually surveyed private grazing land lease rates, 1964-1968 = 100.
BCPI	=	The Beef Cattle Price Index, an index of USDA annually reported prices of beef cattle over 500 pounds, 1964-1968 = 100
PPI	=	The PRIA Prices Paid Index, indexed prices that producers of livestock pay for selected production items, 1964-1968 = 100.

The performance of the PRIA grazing fee formula and its individual components are evaluated in this Chapter. A comparison of PRIA fees with the updated 1991 appraised market value, the former 1969 fee system, and possible improvements to formula components are also discussed.

Figure 3.1 shows the formula indexes included in PRIA for the years 1964 to 1991 and the calculated PRIA value for public grazing fees. The PRIA formula, however, has only been used to calculate fees since 1979. The data for 1964 to 1979 are included to provide a long-term perspective on the response of the PRIA formula to its indexes.

Figure 3.1: Data Used to Compute Grazing Fees with PRIA Formula and PRIA Values

Data Year	Private Grazing Land Lease Fee Year	Rate (PGLLR)	Forage Value Index (FVI) ^{1/}	Beef Cattle Price	Beef Cattle Price Index (BCPI) ^{2/}	Prices Paid Index (PPI) ^{3/}	Unconstrained PRIA Fee Rates ⁴
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Indexes for Base Years 1964 - 1968 = 100.

1964-68	\$3.65/Hd.Mo.	100	\$22.04/cwt.	100	100	1.23
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Indexes for Years 1969 - 1978:

1969	1970	3.82	105	27.00	123	113	1.41
1970	1971	4.05	111	29.50	134	118	1.56
1971	1972	4.06	111	29.50	134	124	1.49
1972	1973	4.17	114	36.80	167	130	1.86
1973	1974	4.57	125	43.00	195	140	2.21
1974	1975	5.82	159	39.20	178	168	2.08
1975	1976	5.75	158	35.20	160	198	1.48
1976	1977	6.37	175	36.10	164	215	1.52
1977	1978	7.06	193	36.00	163	230	1.55
1978	1979	7.11	195	47.60	216	246	2.03

Indexes During PRIA Executive Order 12548 Fee Formula, 1979 - 1992:

1979	1980	7.53	206	64.90	294	275	2.77
1980	1981	7.88	216	64.20	291	319	2.31
1981	1982	8.83	242	59.10	268	359	1.86
1982	1983	8.36	229	57.70	262	378	1.39
1983	1984	8.85	242	56.40	256	387	1.37
1984	1985	8.86	243	57.79	262	395	1.35
1985	1986	9.17	251	53.65	243	397	^{5/} 0.93
1986	1987	8.50	233	51.78	235	388	^{5/} 0.98
1987	1988	8.54	234	59.96	272	381	1.54
1988	1989	8.75	240	65.46	297	386	1.86
1989	1990	8.87	243	67.46	306	402	1.81
1990	1991	9.22	253	71.81	326	419	1.97
1991	1992	9.66	265	72.15	327	436	1.92

- ^{1/} The annual PGLLR divided by the 1964-1968 base PGLLR of \$3.65 and multiplied by 100 to convert to an index number.
- ^{2/} The annual beef cattle price divided by the 1964-1968 base beef cattle price of \$22.04 and multiplied by 100 to convert to an index number.
- ^{3/} Index of prices paid for livestock production inputs for beef cattle from November through October of the data year and weighted to reflect beef production in the Western States.
- ^{4/} PRIA calculated rates or economic value without applying plus or minus 2 percent limit on year-to-year change. For actual PRIA fee rates for the years 1979 - 1985 see Appendix Figure B.4.
- ^{5/} PRIA fee formula expired December 31, 1985, and indefinitely extended by EO 12548 (2/14/86) with a minimum of \$1.35 per AUM.

EVALUATION OF THE FORMULA

Role and Effects of the Combined Index: The intent of the PRIA formula has been to adjust the \$1.23 base value over time using the FVI to account for market changes and the difference between the BCPI and the cost of livestock production as measured by the PRIA formula PPI to account for changes in the permittees ability to pay. The BCPI minus the PPI is the combined index and reflects short-term changes in the permittees' ability to pay, in addition to a level of ability to pay reflected in the FVI. A comparison of the results of PRIA with the FVI is shown in Figure 3.2 for the years of 1979 to 1990. Tying grazing fees to ability to pay has reduced the return to the Government from the public rangelands since 1979. This can be seen in the spread that has occurred between private grazing charges illustrated by FVI and the PRIA grazing fee indexes.

Figure 3.2: A Comparison of the PRIA Formula and the FVI, 1979-1990

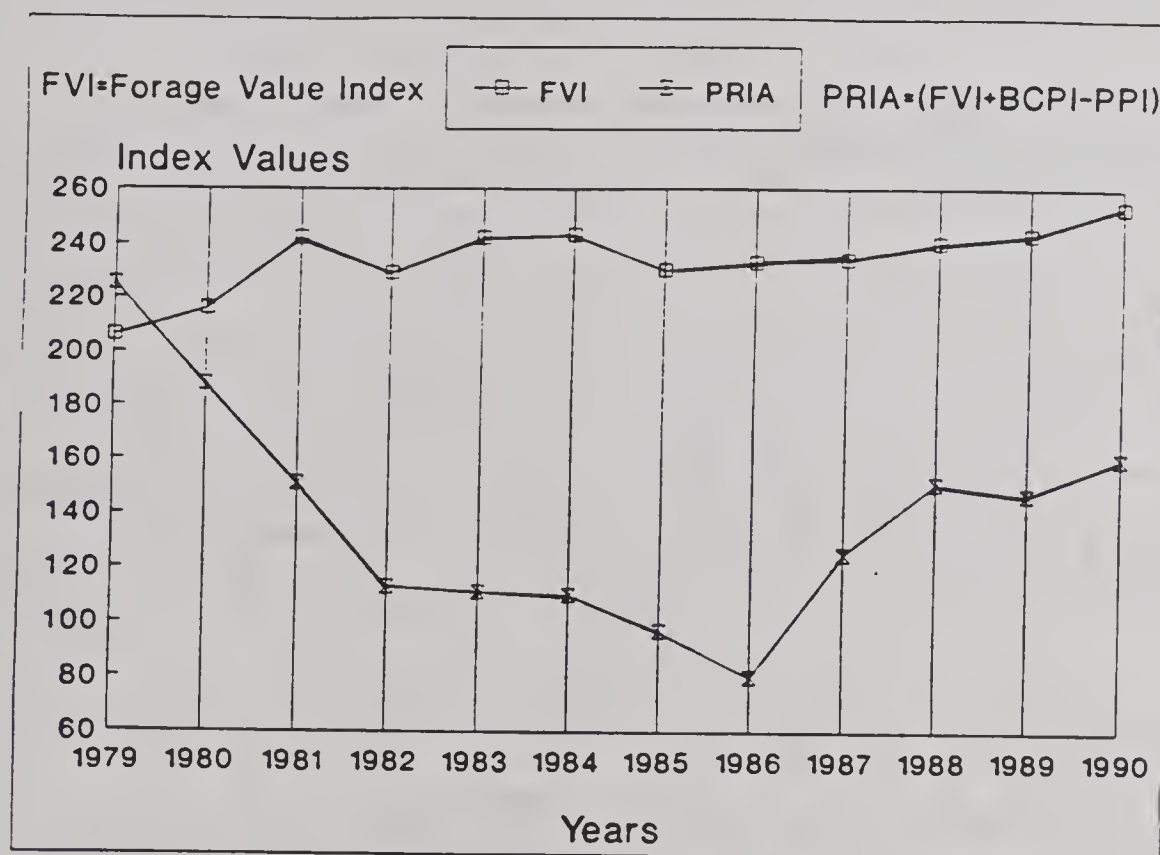
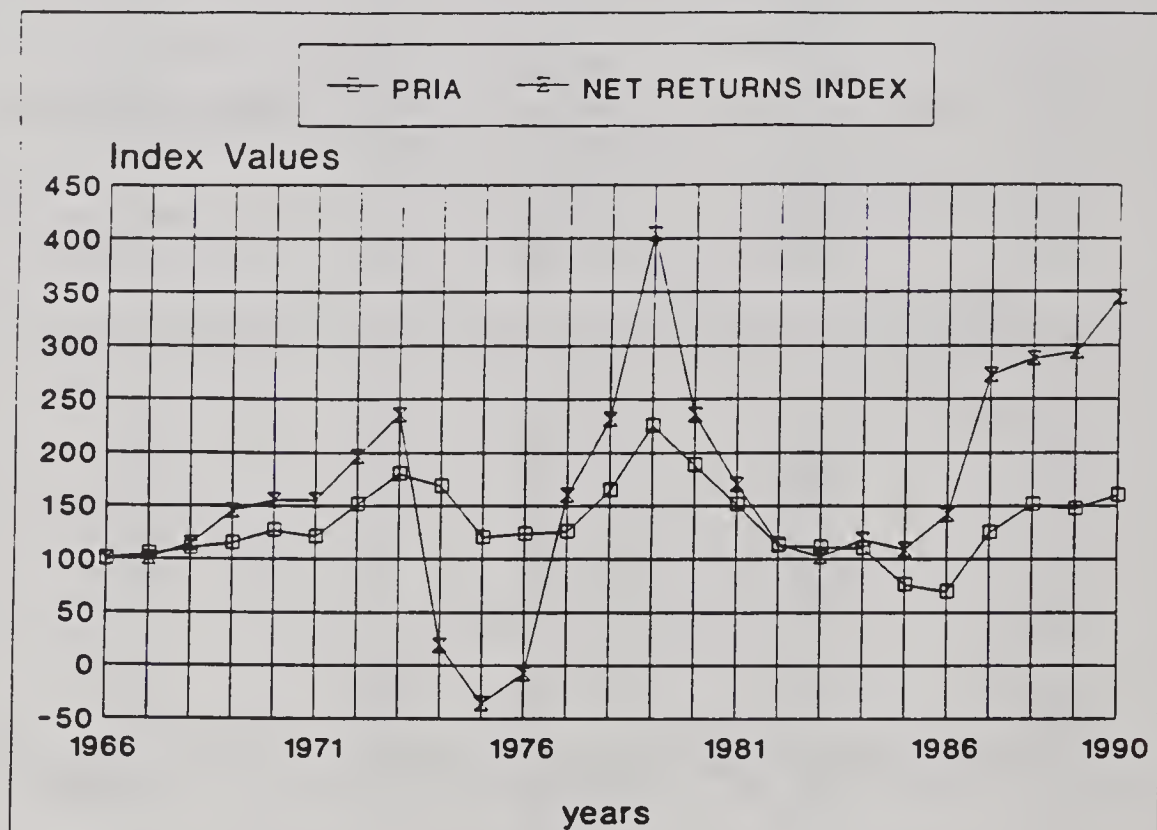


Figure 3.2 illustrates the difference between the index of private lease rates (FVI) and an index of PRIA. Since 1979, the inclusion of the combined index has resulted in a sharp downward trend in the PRIA values. From 1979 to 1990, the inclusion of the combined index has resulted in less revenues for the Government than would have occurred if only the FVI was considered. In 1979, the PRIA value was greater than use of the FVI alone would have justified. Thus, the application of PRIA in 1979 reduced returns to permittees in that favorable market price and profit

period due to the influence of the combined index. Since 1979 the public land permittees have paid less than they would have paid had only the index of the pre-PRIA formula of private lease rates (FVI) been used.

Figure 3.3 shows the PRIA (FVI + BCPI-PPI) compared to a net returns index for the 1966 to 1991 period (1966 base year = 100). The net returns index was computed by the Economic Research Service (ERS) using livestock prices and production costs. Hay, grain and other costs were computed by using hay and grain prices and the PRIA PPI indexing. Until the mid 1980's, the PRIA formula followed the same general trends as the net returns and captured some of the annual variation and trend in the permittee rancher's ability to pay. Since about 1984, the net returns index increased faster than the PRIA formula.

Figure 3.3: Comparison of PRIA and Net Returns Index - 1966-1990



Source: Brokken and McCarl, 1984, and USDA ERS, 1992.

\$1.23 Base Value: The 1966 WLGS, from which the \$1.23 base value was derived was based on a 1964 economic study of grazing fees contracted by the FS and the BLM to Utah State University (USU). The objective was to develop a model that measured the annual economic value of grazing land use and occupancy to permittees of public rangelands. The economic model is described as follows:

"An economic model developed at USU is based on the assumption that the economic principles of supply and demand operate in a competitive range forage price market just as they do for products in other markets. The economic rationale of the study was the alternative cost concept. The essence of this principle is the value of public range forage used for grazing is equal to the rental value of private pastures leased for grazing after adjusting for differences in the costs of services provided on the private lands but not on public rangelands.

In other words, if a competitive market exists for grazing forage, total user costs for comparable public land and private ranges will be equal. If use cost differentials exist, ranchers in a competitive market will attempt to gain control of the low-cost forage source. The nonfee costs plus the private lease rate represent the total cost of operation on leased private land. When the nonfee cost items for public land users are subtracted from the total cost to the rancher leasing comparable private grazing land, the difference measures the dollar value a rancher should be willing to pay in a competitive market for the use of the public land." (Review of Federal Land Administration for Livestock Grazing, 1967)

In 1966, the USDA Statistical Reporting Service (SRS) (now National Agricultural Statistics Service, NASS,) interviewed 10,000 individuals in a one-time survey to obtain information on the fee and nonfee costs associated with the leasing of public and private grazing lands. The 1966 base value for public lands of \$1.23 per AUM, as shown in Figure 3.4, was derived from subtracting the total of the fee and nonfee costs (\$4.54) on private leases ($\$4.54 - \$3.28 = \$1.26$). The numbers in parentheses in Figure 3.4, \$1.26 and \$1.13, are the values that equalize the costs of grazing the private leased lands and the public lands, or what the model represented as the fair market value of grazing public rangelands for cattle and sheep respectively. These values were weighted by the number of cattle and sheep AUM's to derive the \$1.23 base value. Based on the annual survey by SRS from 1964 to 1968, the five-year average private grazing land lease rate was \$3.65 per AUM. This average rate was used to form the FVI that was used as the annual adjustment mechanism in the 1969 Fee System and the PRIA Fee System.

Another way of understanding the derivation of the \$1.23 base value is by subtracting nonfee differential costs of \$.53 per AUM for cattle and an additional \$.02 per AUM for sheep, or a total of \$.55 in costs from \$1.78, the weighted average private grazing land lease rate found in the 1966 WLGS. The results of the 1966 WLGS were applied by the FS and the BLM in the 1969 grazing fee formula (Study of Fees for Grazing on Federal Lands, 1977). Nonfee costs for grazing private leased and public rangelands determined by the 1966 WLGS are shown in Appendix B, Figure B.9.

The 1983 appraisal of rental value, discussed in Chapter 2, used a market data approach instead of a cost approach (used in the 1966 WLGS) to establish a fair market base value. Since the \$1.23 base value is nearly 20 years old, the current PRIA formula could have been updated through the use of the 1983 market value appraisal results presented in Chapter 2. The FS and the BLM in 1981 as part of the current grazing fee study, chose not to update the 1966 WLGS because: (1) private grazing land lease rates, obtained through a market appraisal and analysis, were needed for comparison with private grazing land lease rates obtained annually through the annual JES (USDA-SRS annual survey of farmers and ranchers (see Figure 3.7)); (2) the 1966 base value, which was derived from a differential cost

base value, needed updating; and (3) the costs for repeating the 1966 WLGS in 1983 would have been in excess of \$4 million, as opposed to the \$2.8 million cost of the appraisal.

Figure 3.4: Summary Results of the 1966 Western Livestock Grazing Survey

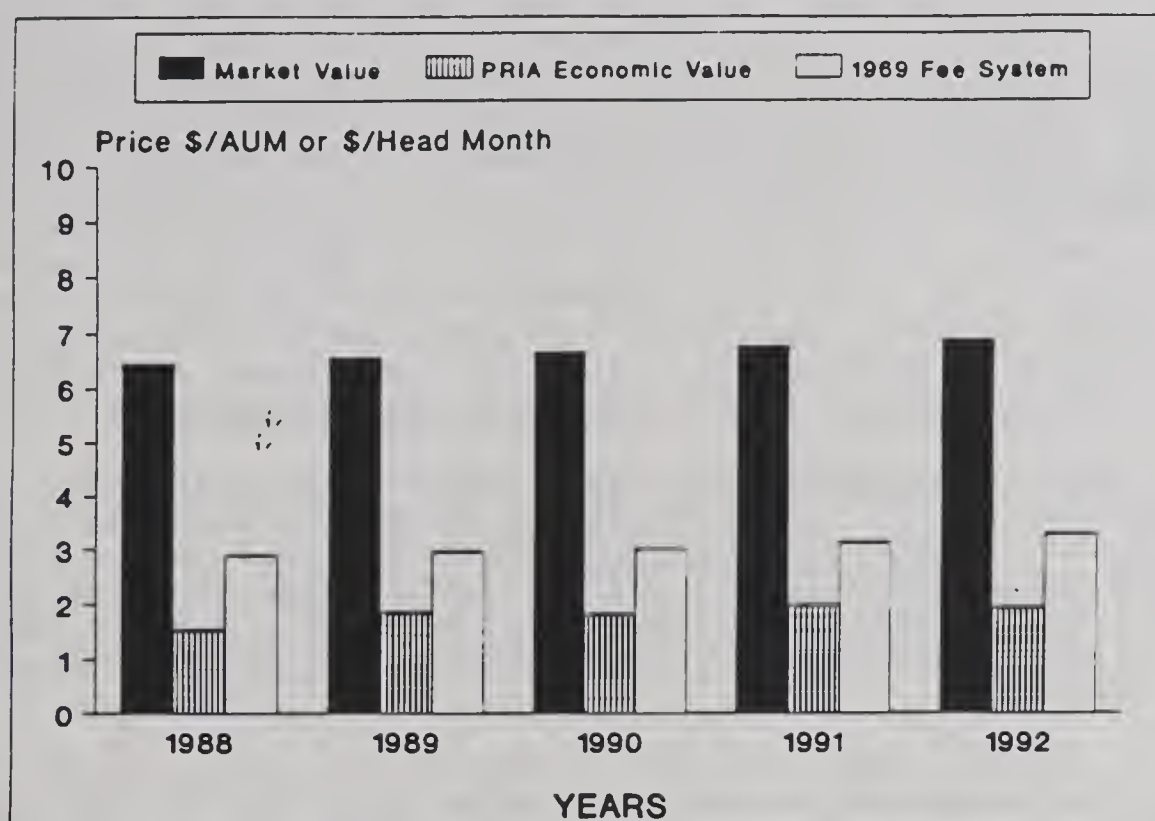
	Cattle		Sheep	
	Public	Private	Public	Private
Total Nonfee Costs	\$ 3.28	\$ 2.75	\$ 4.53	\$3.89
Lease rate	(\$1.26)	\$ 1.79	(\$1.13)	\$1.77
Total Costs	\$ 4.54	\$ 4.54	\$ 5.66	\$5.66
Derived FS/BLM Lease Rate	(\$1.26)		(\$1.13)	
Difference for Private Lease	\$0.53		\$0.64	
Weighted Private Lease Rate (Cattle and Sheep)		\$1.78		
Cattle and Sheep nonfee cost weighted difference: (Cattle 80%, sheep 20%)		-\$0.55		
Weighted nonfee costs difference		\$1.23		

As part of the Fee Report Update, USDA's NASS indexed the 1966 Base Value (\$1.23) to a 1990 value of \$2.95 per AUM (appendix Figure B.9).

Comparison of PRIA Fees with Westwide Indicated Market Value and the 1969 Fee System, 1988-1992: Measures of the PRIA formula's performance for 1988 to 1992 were derived from comparing the indicated market value for the public lands, as determined by the grazing rental appraisal, with fee rates that would have been derived from the former 1969 fee system. The FS and BLM appraisers, through a separate market analysis, observed that 1983 private grazing land lease rates were \$7.00 per head month (\$/AUM). As of January 1, 1992, the updated rate is \$8.00. After discounting ten percent for advance payment and an additional five percent for comparability the indicated market value for grazing on public rangelands was calculated to be \$6.84 per head month.

The 1969 fee system annually adjusted the 1964 to 1968 base value of \$1.23 by an index of the annual change in private grazing land lease rates. Figure 3.5 shows PRIA's performance in relationship to the indicated westwide market value and fee rates determined by the grazing fee system. The indicated westwide market value was based on 16 Western States, while the PRIA and the 1969 grazing fee system values were based on 11 Western States. For the 5 years 1988 to 1992, the PRIA fees averaged 27 percent of the indicated market value, with a range from 24 percent in 1988 to 29 percent in 1990. The average PRIA fee was about 60 percent of the amount that the former 1969 system would have produced.

Figure 3.5: Comparison of the PRIA Fee with the Westwide Indicated Market Values and the 1969 Grazing Fee System, 1988-1992



As shown in Figure 3.6, the differences for the years 1986 to 1992 between the PRIA rates and the indicated westwide market value range from \$4.70 per AUM to a high of \$5.05 per AUM or an average difference of \$4.89 per AUM.

Figure 3.6: Comparison of PRIA Values with the Indicated Market Values and the 1969 Grazing Fee System Values, 1986-1992

Fee Year	PRIA Fee Rates \$/AUM	Indicated Market Value \$/Hd Mo ^{1/}	PRIA Minus Indicated Market Value \$/Hd Mo	1969 Fee System Values ^{2/}	PRIA Minus 1969 Values
1986	1.35	6.27	4.92	3.09	-1.74
1987	1.35	6.37	5.02	2.87	-1.52
1988	1.41	6.46	5.05	2.88	-1.47
1989	1.86	6.56	4.70	2.95	-1.09
1990	1.81	6.65	4.84	2.99	-1.18
1991	1.97	6.75	4.78	3.11	-1.14
1992	1.92	6.84	4.92	3.26	-1.34

^{1/} Indicated westwide market value after adjustment for comparability and advanced payment, and assumes a straight line increase to the January 1992 calculated market value.

^{2/} Fee rates which would have been charged under the 1968 to 1977 fee system (i.e., \$1.23 indexed only by FVI).

EVALUATION AND IMPROVEMENT OF FORMULA INDEXES

Forage Value Index (FVI): The FVI is used in the PRIA grazing fee formula to update the fee determination for annual changes in the market value of public grazing lands. The FVI index is based on the NASS Annual July Cattle Survey. Since 1986, NASS Private, nonirrigated, Grazing Land Lease Rate (PGLLR) survey data has shifted from the June Enumerative Survey (JES) to the July Cattle Survey. Both are comparable probability based surveys and all respondents are cattle producers. As part of the July Cattle Survey, cattle operators (permittees and nonpermittees) are asked to report what private grazing lands are renting for in their area on a per AUM, per pair, and per head basis. The FVI is a weighted average estimate of rental value per AUM for the 11 Western States. Each year's private lease rate is divided by the base period's (1964 to 1968) private grazing land lease rate of \$3.65 and multiplied by 100 to convert it to the annual index number or FVI.

The FVI's use have caused concern by the livestock industry and the land management agencies about: (1) the lack of direct comparability between the quality of the land and the amount of services provided on the public and private grazing leases, and (2) use of a reporter type question and rancher response rather than actual price data, resulting in a lack of data for some States in some years (Nelson and Garratt, 1984). These two issues are discussed in order.

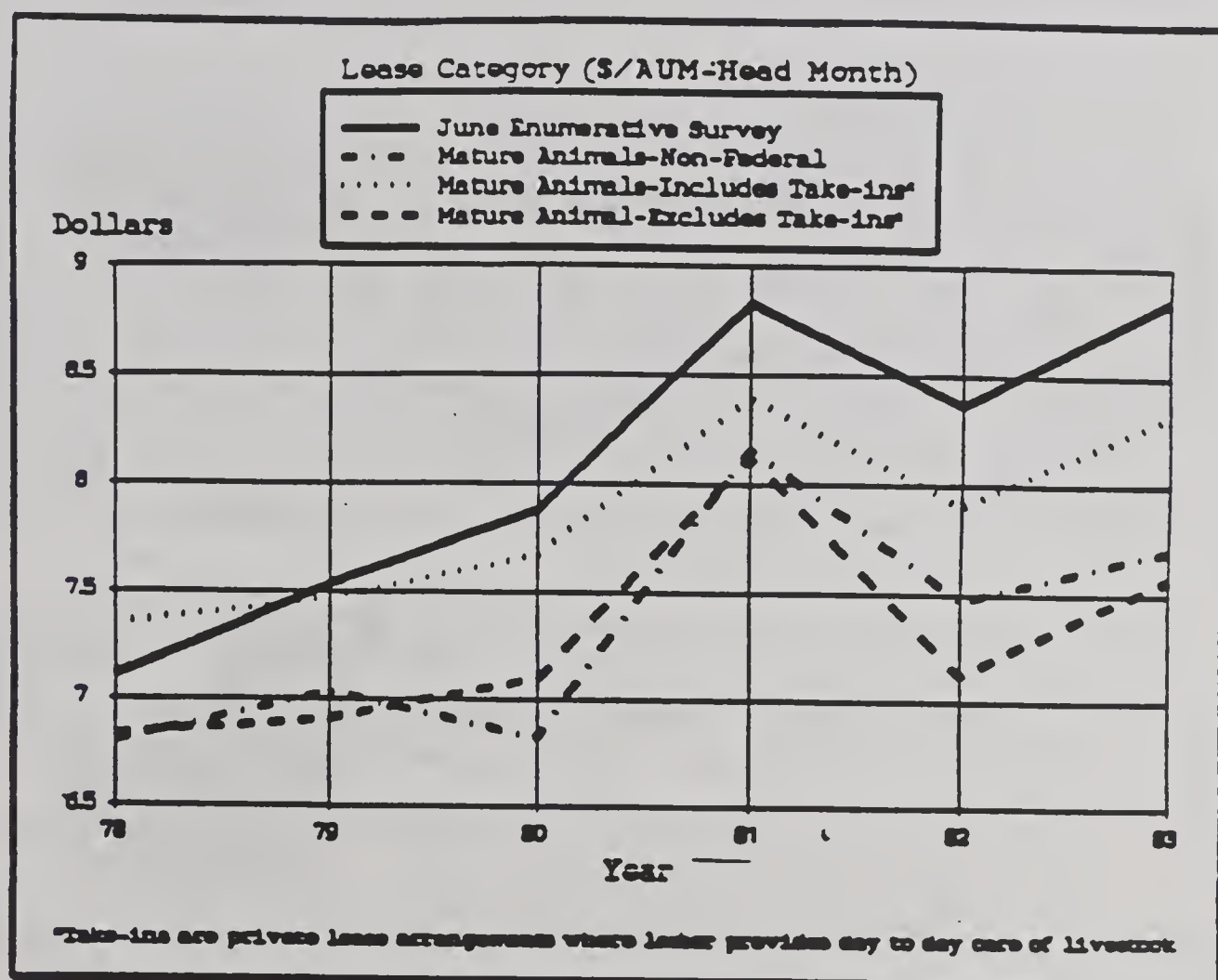
Issue 1. The accuracy of the JES was measured by comparing its results to the appraisal's results. This comparison showed that while the JES might not have been the best measure of actual prices or price trend in any individual State, it was a reliable short-term indicator of the westwide trends for private rangeland rental for mature animals. Prices paid for the private rental arrangements appeared to reflect market response to rancher demand for forage and the available supply. Figure 3.7 illustrates the westwide correlation in the movement between the JES's estimated prices and the actual prices shown in the appraisal. A comparison of the JES and the appraisal also indicated that the JES's estimates on a westwide basis were fairly close to the prices being paid, but were consistently higher.

Issue 2. The survey used in estimating the FVI asks respondents to "report" what the average private grazing lease rate was in their area. Use of a reporter question has been criticized because it does not ask persons to identify known values but asked persons to recall or speculate on values. The closeness of the JES to the appraisal partially validated the use of the reporter question. Since the JES produces constantly higher results, it also suggests the possibility of an upward bias in absolute values. The real test of the JES's use for FVI is consistency of indices for FVI based on appraisal value and JES values for 1978-1983. Further studies by the FS, the BLM, and the SRS indicated that the added benefits from improving the accuracy of the data were not worth the added costs (Nelson and Garratt, 1984). Responses in the July Cattle Survey, by those who actually "pay" for private grazing have been compared with those who "do not pay." This approach was used in 1990 and 1991, and will continue for 1992. Results, to date, indicate that "pay" versus "nonpay" rates do not differ significantly.

The survey sample used in deriving the FVI was weighted by the number of farm units. Concern also has been expressed over the weighting procedures since areas with large amounts of public land tend to have few farm units and, therefore, make up a very small proportion of the FVI sample. For example, California, with many farm units but few public grazing lands, was sampled

more heavily than its neighboring State of Nevada, with few farm units, but a large amount of public land. The current weighting system has the advantage of being more representative of all livestock operators. The percent of public land AUM's, private leases, and beef cattle marketings by State are shown in Appendix B, Figure B.10, and are summarized in Figure 3.8.

Figure 3.7: Comparison of the 1983 Appraisal Values for Private Grazing Lease Rates and the June Enumerative Survey Values, 1978-1983. (Note: Appraisal data not available to update this figure).

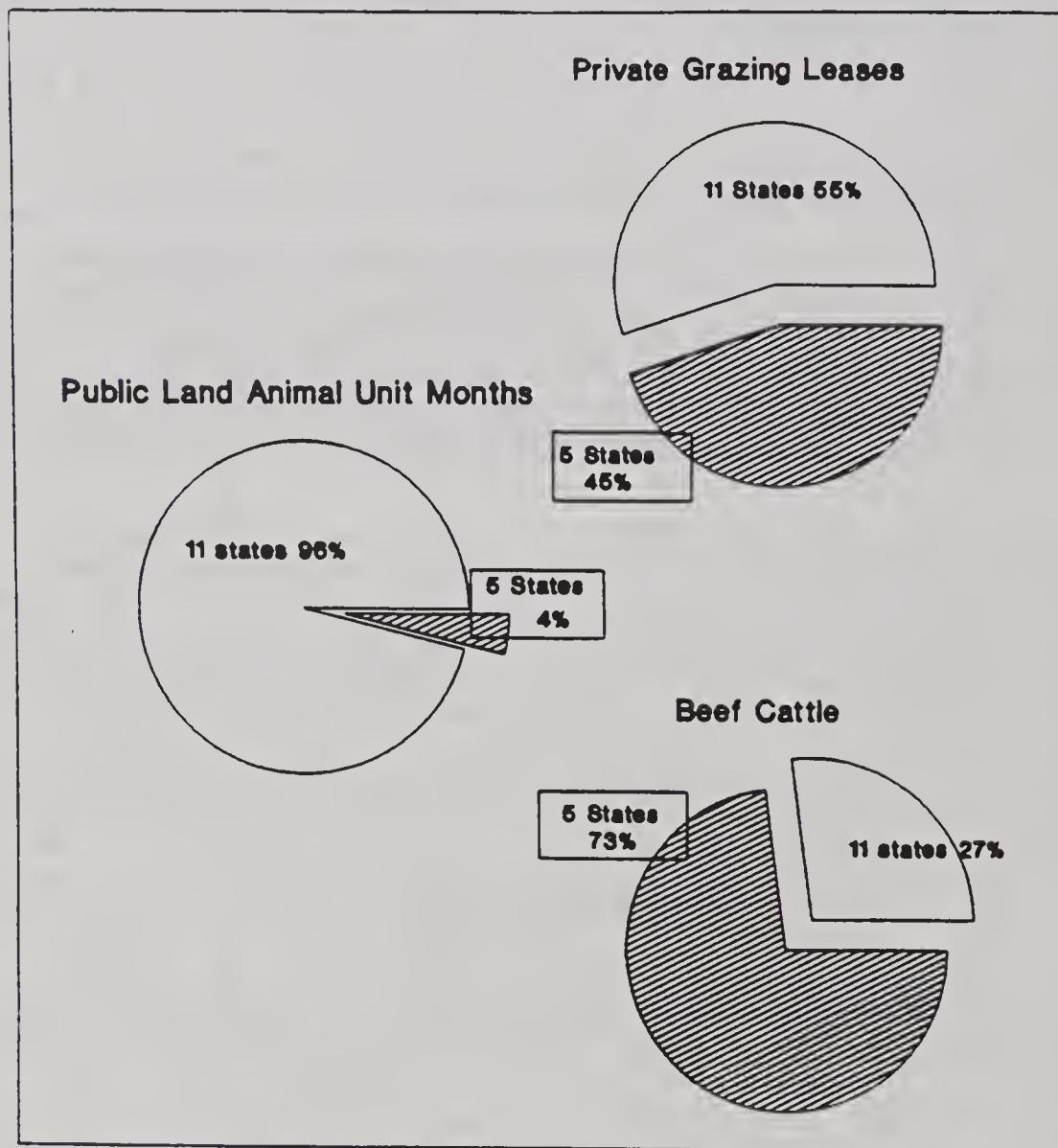


weighting values by AUM's would result in a private lease rate value of \$7.23 per AUM that would bring it closer to appraisal values for 1983 versus the \$7.36 per AUM rate derived from the current weighting procedures.

As stated in Chapter 1, public rangelands, excluding National Grasslands, are defined in the PRIA as those lands administered by the FS and the BLM within the 16 Western States. Analysis of the PRIA fee formula showed that the majority of public rangelands and the associated AUM's of forage production are within the 11 Western States. The analysis also disclosed, as shown in

Figure 3.8, that the majority of livestock production occurred in the Great Plains States, and that these States had higher private grazing land lease rates. Weighting July Cattle Survey private lease rate values by public rangeland AUM's would place emphasis on the use of private lease rates for the States where the majority of the public rangelands are located.

Figure 3.8: Comparison of the Percent of AUM's, the Percent of Private Grazing Land Leases, and the Percent of Beef Cattle in the 11 Western States and the 5 Great Plains States

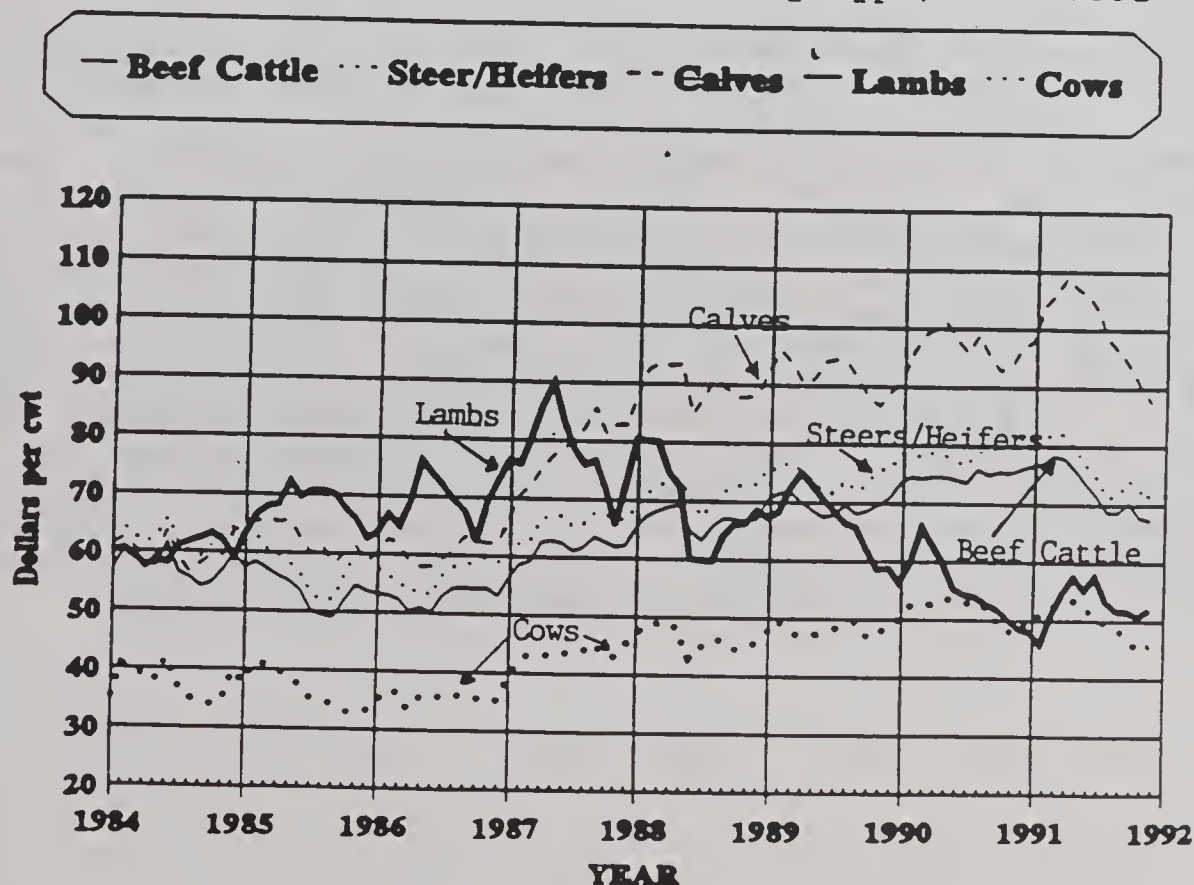


Beef Cattle Price Index: The USDA's NASS collects prices received by producers for cattle sold in 35 States. Since 1981, the livestock price survey has used a probability survey of auctions, stockyards, packers, and dealers. The sampled buyers report purchases of livestock from producers. Data provides the number of head purchased, total live-weight, and total dollars paid to the producer by the buyers before marketing costs (feed, water, trucking, commissions, inspections, etc.) are deducted. The average price by State reflects prices received for cattle marketed in each State. No information is obtained on the State of origin of the livestock marketed. The westwide price was determined by weighting each State's price by the total live-weight of livestock marketed. The NASS data used in the PRIA grazing fee formula were based on actual transactions during the 12-month, November-October period. An average annual price was computed. The annual price was converted to an index number by dividing the price by \$22.04 per hundredweight (the 1964-1968 average beef cattle price) and multiplying it by 100 (Thorp and Holden, 1984).

The prices used for the index were for beef cattle, which were defined as marketed cattle that were marketed weighing over 500 pounds, including feeder and slaughter animals. Figure 3.9 shows the prices received by producers for different types of beef cattle. The NASS beef cattle price data used in the PRIA formula included the prices for steers, heifers, and cows over 500 pounds. Calves, defined as animals under 500 pounds, were excluded from this index. The BCPI as an index does not fully cover livestock which graze public rangelands since it does not contain data on calves (under 500 pounds) or sheep. It also includes data on fat cattle (not produced on the public lands). Potential refinements to the BCPI are: (1) to modify it to include other classes of livestock (calves and sheep), (2) to modify it to exclude fat cattle, and (3) to update the base period to reflect market conditions in the 1990's. The first modification would bring the index more in line with the livestock products produced on the public lands. The current BCPI also could be refined by weighting the annual index by public land AUM's per State in each of the 16 Western States.

Adding calf prices to the existing BCPI to get a cattle price index would have an impact on the price pattern. The addition of calf prices would increase the level of the cattle price index or would decrease the BCPI due to wider cyclical variation in calf price. The average value change is relatively small because calves account for only 10 percent of the marketings on a live-weight basis in 1990, and calves have the same general price trends as beef cattle over time. In years where the spread between beef cattle and calf prices (such as 1987-1991) is relatively large, inclusion of calves would have an upward effect on the BCPI. Conversely, as the relative spread declines, a lower BCPI would be the result. Figure 3.9, from 1984 to 1991, shows the price patterns for calves and sheep, both of which are excluded from the current NASS index, and for beef cattle (which includes steers, heifers, and cow). The conclusion in 1986 was to exclude calf prices since their inclusion would not significantly change the BCPI (Thorp and Holden, 1984).

Figure 3.9: Monthly U.S. Prices of Livestock by Type, 1984-1992



The NASS recommends that data on sheep and lambs be excluded in any livestock price index for the following reasons: (1) data on sheep are not as reliable as the data used to prepare the other indexes, and (2) sheep make up such a small portion of livestock sales that the addition of the data would have only a minor effect on the index.

Modifying the index to exclude fat cattle would satisfy the concern that has been expressed about including cattle fed through feedlots in the formula price. This would require the use of a new series that started in 1983, with no historical data before that year. The series would more accurately reflect the livestock on public land, but it is unlikely to reflect different price trends from the existing series. This is not recommended.

Prices Paid Index: The PPI in the PRIA formula is an index of selected components of the National Index of Prices Paid by Farmers (Thorp and Holden, 1984). Weights used to combine the selected components are based on the 1976 cost of production budget for cow-calf operations in the western region. Figure 3.10 shows the selected components and the weights assigned to the components for the National Cost of Livestock Production Index and their regionalized application in the PPI developed for use in the PRIA formula.

The PPI used did not include: (1) the cost of living component represented by the Consumer Price Index; (2) components of farm origin (feed, feeder livestock, seed, and fertilizer); nor (3) taxes. The components of farm origin were excluded because these components generally represented either elements of feed, feed production (seed and fertilizer), or livestock purchases included in other index components. The exclusion of these factors gives greater weight to components of livestock production highly affected by market change and inflation, such as fuel costs.

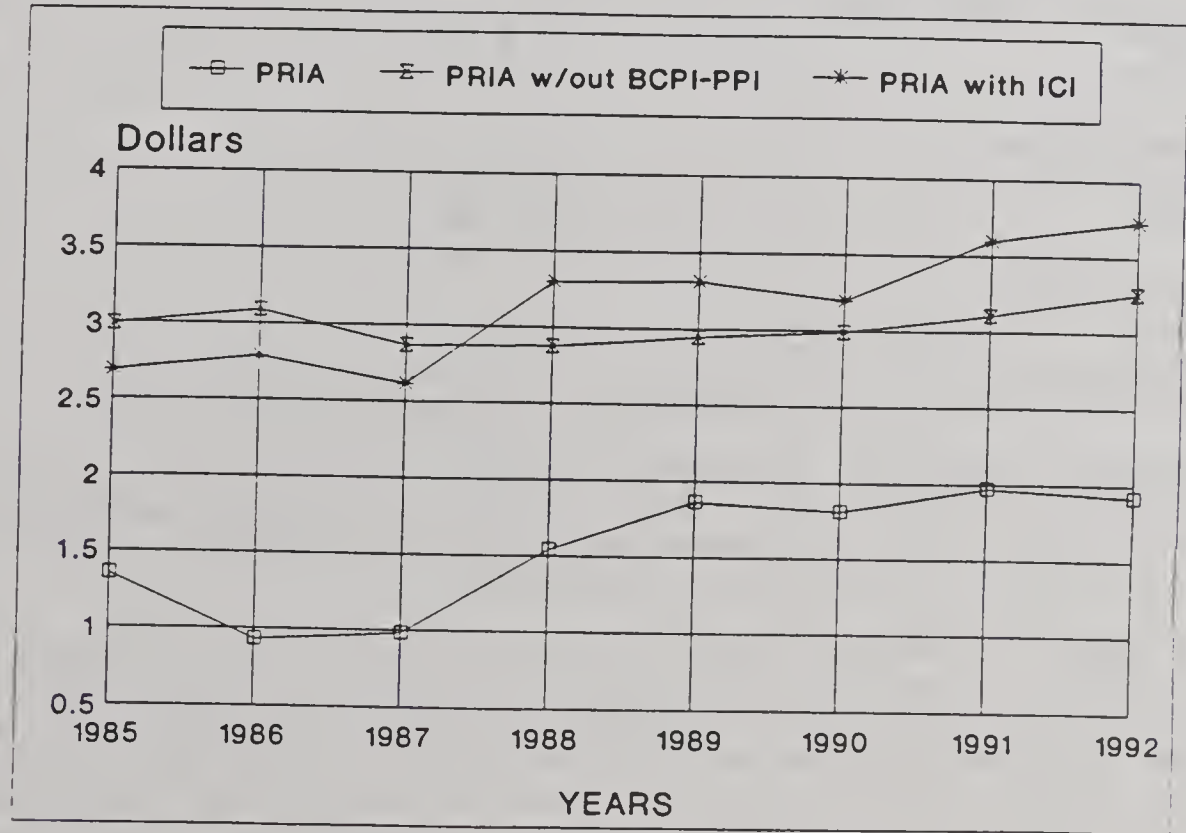
The PRIA formula PPI could be refined by expanding the index to include all livestock production costs of both farm and nonfarm origin. The components and suggested weights for the expanded index, which is titled the Input Cost Index (ICI), are also shown in Figure 3.10. Production factors of nonfarm origin have increased in cost much more rapidly than production factors of farm origin. Excluding production factors of farm origin has resulted in an overstatement of the PRIA PPI permittee's production costs. Specific information in the ICI index is shown in Appendix B, Figures B.11 and B.12. Updating to 1992, the effects of including the ICI in the PRIA fee formula are shown in Figure 3.11. The ICI, without any other adjustments to the PRIA formula, would result in a 1990 fee of \$3.20 per AUM instead of the \$1.81 per AUM fee derived from the current PPI. NASS prices paid input indexes used in both the PPI-PRIA and the ICI are "fixed weight indices" with data from 1971-73 making up the quantity component while the price component is current. Changes to the quantity of individual input required, since 1973, are not reflected in the prices paid indexes. The 1980-84 Cost of Production Survey weights, used to compute overall ICI, bring the index to a western cow calf basis and bring the mix of individual indices to a more current level but do not update the quantity component of the individual indices.

Figure 3.10: Comparison of the Factors Used in the National and the PRIA Prices Paid Indexes, and the Proposed Input Cost Index (ICI)

Index Components	National Index Of Prices Paid	PPI PRIA FORMULA 1/	ICI
Consumer Price Index	30.4		
Production Commodities	57.6	80.0	66.2
Feed	11.8		42.6
Feeder Livestock	11.7		
Seed	1.8		
Fertilizer and Ag. Chemical	5.9		
Fuels and Energy	3.5	14.5	6.7
Farm and Motor Supplies	2.2	12.0	
Autos and Trucks	2.5	4.5	
Tractors and Self-Prop. Machinery	4.5	4.5	7.2
Other Machinery	2.7	12.0	
Bldg. and Fencing Material	3.6	14.5	4.8
Farm Services	7.4	18.0	4.9
Interest	4.0	6.0	19.02/
Taxes and Insurance	2.8		6.3
Farm Wage Rates	5.2	14.0	8.5
Total	100.0	100.0	100.0

1/ PPI used in the PRIA formula is a regionalized index derived from a national survey of prices paid in the production of livestock.
 / Nonreal estate interest

Figure 3.11: PRIA and the 1969 Formula Fee Values and the PRIA Computed Using the ICI



Alternative Index Weights: Currently, the PRIA formula PPI is based on a nationwide index weighted to 11 Western States to reflect production costs for cow-calf operations in the West. The FVI and BCPI are both 11-State indexes weighted by the number of private leases and the total live-weight cattle sales, respectively. The PRIA covers grazing in the 16 Western State using an 11 Western State data base. To be consistent with the language in the PRIA, grazing fees for public rangelands in the 16 Western States should be calculated based on data from the States where the fees are applied. If the indexes are based on 16 State's data rather than 11 States, problems arise because the 5 Great Plains States dominate beef production, and a few States have private grazing land lease rates that appear to be disproportionately higher than rates in adjoining States. The States' share of BLM/FS AUM's, marketings, and private leases are shown in Appendix B, Figure B.10, and are summarized in Figure 3.8. An example of the problem of expanding to 16 Western States is shown by looking at Nebraska with 25.8 percent of the market receipts and 17.6 percent of the private leases in 199 but less than 1 percent of the comparable AUM's.

An alternative weighting method would be to use BLM and FS AUM's in each State. The AUM weights could be applied to both the BCPI and the FVI. This would make the indexes more representative of the relationship of public lan grazing to market conditions. The difference that weighting makes in the relative values for the private grazing lease rate and beef cattle prices fo 1983 used in the current PRIA formula, as opposed to what could be used, are shown in figure 3.12. The 1990 grazing fee based on current weights for the 16 Western States would have been \$2.71 per AUM, as opposed to an AUM weighted fee of \$1.91 (the actual 1990 fee based on 11 Western States was \$1.81 per AUM).

Figure 3.12: Comparison of Alternative Weightings of the Private Grazing Land Lease Rate and the Beef Cattle Price Index, 1990

	Current Weighted Values	AUM Weighted Value 1/
Private Grazing Lease Rate		
11 State	\$ 8.87	\$ 8.42
16 State	\$ 9.31	\$ 8.46
Beef Cattle prices		
11 State	\$67.47	\$65.11
16 State	\$70.83	\$65.68
PRIA Grazing Fees		
16 State	\$ 2.71	\$ 1.91

1/ Weighted by Permitted to Graze Public Rangeland AUM's

Alternative Base Periods: The PRIA formula currently uses a multi-year base period of 1964 to 1968 or each of the indexes, with the average of these years set to equal 100. The base period for the PRIA formula corresponds with the 1966 WLGS and the \$1.23 base value.

The USDA's NASS recommends that the base period for all indexes used in a grazing fee formula be more reflective of current farming and ranching technology. Updates should be made about every 10 years. Data used for a grazing fee computation must be consistent, the units have to be in agreement, and the base periods for each of the formula index components should be the same or as closely related as possible. State level indexes

for the FVI, BCPI, and PPI are not recommended. Sample sizes at the State level are small and result in more variability.

Use of Actual Data: If only actual data are used in the grazing fee formula, there will always be a time lag, unless data are projected forward. This lag in the responsiveness of the data to reflect a change in conditions can compound problems if conditions shift suddenly. As an example, an up or down change in the cattle price would affect the following year's fee rate at the very earliest, and would probably impact the rate 2 years later.

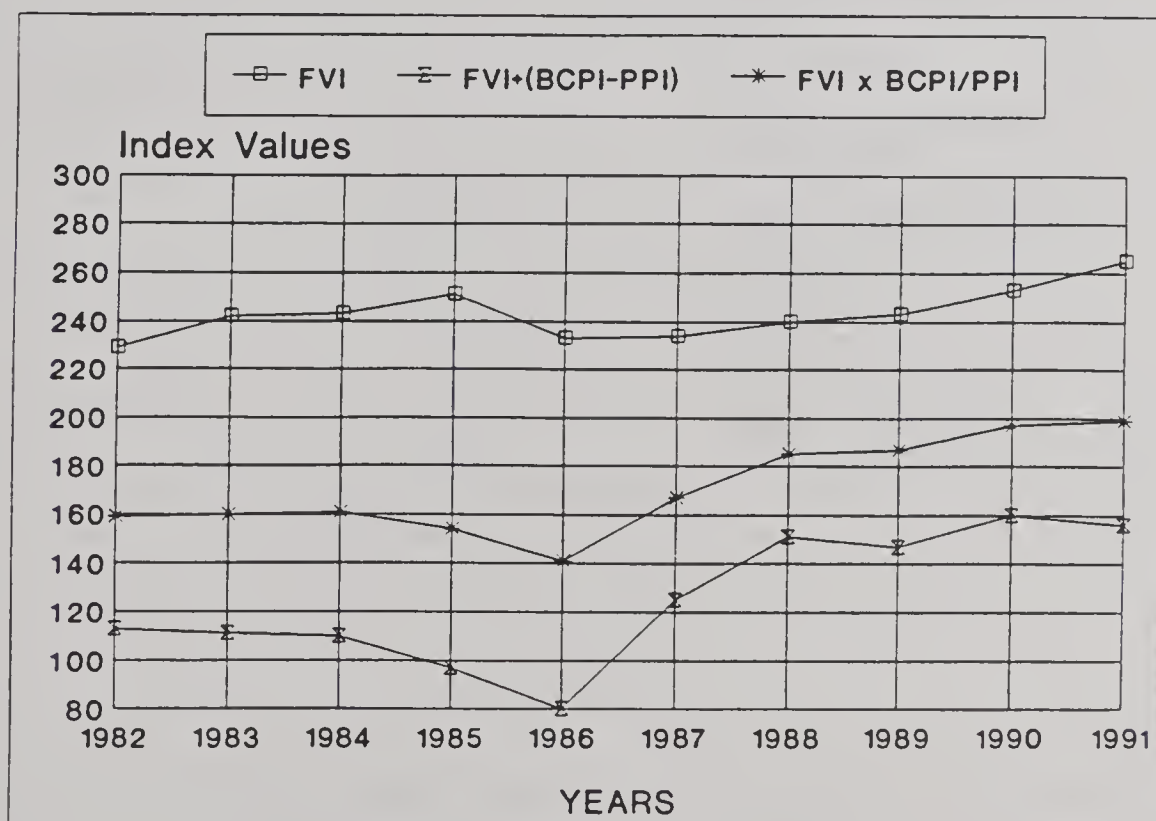
Year-to-Year Variability: This year-to-year variability can be reduced by using moving averages. The use of multi-year base weight periods for the indexes reduces the risk of using a single year that has abnormal relationships.

FORMULA CONSTRUCTION

Additional modifications to PRIA could include dividing the BCPI by the PPI or cost of production index. The effect of using a ratio (BCPI/PPI) instead of subtracting PPI from BCPI is shown for 1982-1991 in Figure 3.13.

Comparison to the FVI also is shown. Using the BCPI/PPI ratio, as indicated by the graph, tends to moderate the variable effect that BCPI and PPI have on the fee. Use of the ratio rather than the absolute difference (BCPI - PPI) would prevent the sum of the indexes from going to zero or becoming a negative number. The ratio (BCPI/PPI) also tends to reduce the spread between the two differences (i.e., difference between the FVI and the FVI + BCPI - PPI, and the FVI and the FVI x BCPI/PPI).

Figure 3.13: Comparison of the PRIA Formula, the PRIA Formula Using a Ratio of the Combined Index, and the FVI



PRIA With Technical Modifications: Using all of the technical modifications discussed-previously would change the PRIA formula to the following:.

$$\text{Calculated Fee} = \text{Base Value} \times \frac{\text{FVI} \times (\text{BCPI}/\text{ICI})}{100}$$

Technical modifications are: (1) compute the FVI weighted by public land AUM's per State for each of the 16 Western States instead of by the number of private grazing leases in each of the 11 Western States, (2) compute the BCPI weighted by public land AUM's (as in number 1 above) instead of by total live-weight cattle sales in the 11 Western States, (3) use an ICI that includes all production costs of farm and nonfarm origin instead of the present PPI, (4) use 1989-1991 instead of 1964-1968 for a base period, and (5) use a ratio of the BCPI/ICI instead of subtracting one from the other.

The combined effect of these technical modifications is shown in some of the alternative grazing fee formula examples in the next chapter. It should be noted that even with these technical modifications, the indexes (FVI, BCPI, and ICI) can interact to cause the calculated fee to go below the base value.

Chapter 4. IDENTIFICATION AND EVALUATION OF GRAZING FEE OPTIONS

The PRIA requires the Secretaries to report to Congress on "... their evaluations of the fee established ... and other grazing fee options, and their recommendations to implement a grazing fee schedule for the 1986 and subsequent grazing years." The specification of grazing fee options for evaluation and the development of the evaluation criteria are described below.

GRAZING FEE SYSTEM REVIEWED

In 1981, the FS and the BLM contracted for an inventory and an analysis of grazing fee systems used by other Federal agencies and State and local governments in the 16 Western States (Bartlett, McKean, and Winger, 1983). A summary of the fee systems identified by these studies is shown in Figure 4.1.

Figures 4.1: Grazing Fee Systems Reviewed in Formulating Alternatives to PRIA Fee System

FEE DETERMINATION METHOD	STATE GOVERNMENT	LOCAL GOVERNMENT	OTHER GOVERNMENT	PRIVATE	OTHER CORPORATE/PUBLIC UTILITY ETC)	COMMENTS (USERS OF THE FEE DETERMINATION METHOD, OTHER RELEVANT COMMENTS)
1. PRIA (CURRENT FS/BLM) LEGISLATED FEE SYSTEM	*		*			1. STATES: ARIZONA, CALIFORNIA AND UTAH (STATE LANDS DEPT.) FED'L: NAT'L PARK SERVICE
2. PRIVATE RATE COMPARISON	*	*	*	*	*	2. DOMINANT METHOD IN USE
3. LANDLORD-TENANT NEGOTIATION				*		3. COMMON PRIVATE MARKET APPROACH TO PRICING
4. LANDLORD SHARE OF GAIN/ANIMAL				*		4. PRIVATE MARKET APPROACH TO PRICING
5. RENTAL VALUE/ACRE GRAZED	*	*		*		5. SYSTEM OBSERVED IN CALIFORNIA, COLORADO, (ESPECIALLY LOCAL GOVERNMENTS)
6. BASE RENT X MKT \$/COST	*					6. FORMER OKLAHOMA, SOUTH DAKOTA, AND MONTANA FEE SYSTEM
7. BASE RENT ADJUSTED BY VARIABLE CARRYING CAPACITY	*	*			*	7. FEE SYSTEM DESIGNED BY UNIVERSITY OF NEVADA - RENO
8. COMPETITIVE BIDDING			*			8. DEFENSE DEPTS. (NAVY, CORPS OF ENGINEERS), BUREAU OF INDIAN AFFAIRS, BUREAU OF RECLAMATION, BLM/FS
9. COST RECOVERY					*	9. PUBLIC UTILITY COMPANIES, RECOMMENDED BY UNIVERSITY ECONOMISTS (WESTERN STATES) FOR ECONOMIC EFFICIENCY/EQUITY REASONS
10. ALTERNATIVE FEED COST	*				*	10. DESIGNED BY UNIVERSITY OF NEBRASKA, USED IN NEBRASKA, MISSOURI, AND FS USE IN NORTHEASTERN REGION
11. WASH. STATE FEE FORMULA	*					11. INCLUDES ABILITY TO PAY, VARIABLE CARRYING CAPACITY, AND RANCHERS SHARE OF INVESTMENTS
12. RESIDUAL FORAGE VALUE					*	12. DESIGNED/USED BY AGRIC ECONOMISTS (UNIVERSITIES/FEDERAL AGENCIES) —BASIS FOR DETERMINING FINANCIAL STATEMENTS, NET WORTH

This study identified 44 State agencies, 63 local governments, and 11 other Federal agencies leasing grazing lands in the 16 Western States. The 1982 average fee was \$6.44 per AUM for grazing lands managed by each of these other government agencies. Data collected during the study indicated that

approximately 52.7 million acres were grazed by livestock under authority of these other public entities. The number of acres managed by State Land Boards and Education Departments and the 1991 grazing fees charged are shown in Appendix B, Figure B.13. Appendix B, Figure B.14, shows the 1990 and 1991 fees charged by these State agencies. The fees per AUM ranged from \$1.48 in Arizona to \$11 in Nebraska. Formulas were the most common means of fee determination on the State lands, with some States using the PRIA fee formula. Fee methods used by State wildlife agencies and other Federal agencies are shown in Appendix B, Figure B.15. Bidding is the most common means of fee determination for these agencies. There was insufficient time to update all the data, however the appraisal contract updated some of the other Federal agencies fee data.

Grazing on State and other Federal Agency rangelands is carried out to either make productive use of lands currently not needed for primary programs or to facilitate their primary programs. On BLM and the FS rangelands, range resource management for domestic livestock production is a major objective. Under the multiple-use mandate, livestock grazing, outdoor recreation, wildlife and fisheries, watershed protection and timber production are legitimate and desirable uses of national forests and public rangelands. As a management tool, grazing may be used to maintain and restore plant communities. By managing the timing and duration of livestock use, grazing helps improve grass and crop production, control erosion, recharge ground water aquifers, enhance riparian conditions, and provide water for recreational, agricultural and other needs.

GRAZING FEE SYSTEMS CONSIDERED

The existing PRIA fee system and the following five alternative grazing fee systems were considered by the FS and the BLM. These alternatives are updated to 1991 values:

1. The PRIA formula with a base value derived by updating the 1966 base to a 1990 value and technical modifications to the formula indexes.
2. A modified PRIA fee formula with a base value from the updated appraisal and technical modifications to the indexes.
3. The PRIA formula with technical modifications and a base value derived from combining the updated 1966 to 1990 data with the 1991 private grazing price data.
4. A modified market value formula which uses a base value from the updated appraisal for either westwide or pricing area application, with the FVI weighted by public land AUM's in each of the 16 Western States.
5. Competitive bidding for both a short- and long-term grazing permit.

Some alternative fee formulas include an ability to pay adjustment (beef cattle prices and costs of livestock production) to help stabilize the public lands sector of the Western livestock industry. This step recognizes Congress' concern that a public land grazing fee system "... should prevent economic disruption and harm."

PRIA FORMULA (No Change) FEE SYSTEM

The PRIA grazing fee formula was discussed in Chapter 3. The PRIA formula is presented in this chapter as the "No Change" alternative; it also serves as a basis for comparing the other alternative formulas with the PRIA.

$$\text{Formula: Calculated Fee} = \$1.23 \times \frac{\text{FVI} + \text{BCPI} - \text{PPI}}{100}$$

Where:

\$1.23 = the 1966 Base Value

FVI = the Forage Value Index

BCPI = the Beef Cattle Price Index

PPI = the Prices Paid Index

1992 Calculated Grazing Fee: \$1.92 per AUM

PRIA-UPDATED BASE VALUE FEE SYSTEM

Description: This alternative uses a base value that is derived from indexing the 1966 WLGS nonfee costs and private grazing lease rates to a 1989-1991 base period. Updating the 1966 data is based on the assumption that the relationship of private lease rates to nonfee costs has not changed.

The 1966 WLGS used an economic grazing fee model described in Chapter 3. The base value for public lands was equal to the difference between total costs of operating on private leased grazing lands and total nonfee costs of grazing public rangelands. This difference is \$1.26 per AUM for cattle, and \$1.13 per AUM for sheep. Weighting these cost figures by cattle and sheep AUM's results in the \$1.23 per AUM base value.

The formula with technical modifications is:

$$\text{Fee} = \text{BV} \times \frac{\text{FVI} \times (\text{BCPI}/\text{ICI})}{100}$$

Where:

BV = Base Value derived by updating to 1990 the 1966 WLGS results

FVI = Forage Value Index based on the AUM weighted private grazing land lease rate for the 16 Western States, 1989-1991 = 100

BCPI = Beef Cattle Price Index, existing beef cattle prices weighted by AUM's for the 16 Western States, 1989-1991 = 100

ICI = Input Cost Index (derived from National Prices Paid Index), weighted to reflect all production costs (both farm and nonfarm origin) for typical cow-calf operations in the western region, 1989-1991 = 100

The modified indexes and their derivation are shown in Figure 4.2. For the derivation of the updated base value see Appendix A.1.

Figure 4.2: Computation of Annual Index Values for FVI, BCPI, and ICI, and the Basic Price Data for these Indexes, 1989-1991

Data Year	Fee Year	Beef Cattle Prices	BCPI	Private Lease Rate	FVI	Input Costs Index (ICI)
1989-1991*		\$69.64	100	\$8.83	100	100
1989	1990	\$65.68	94	\$8.46	96	100
1990	1991	\$71.29	102	\$8.55	97	100
1991	1992	\$71.95	103	\$9.47	107	100

*Average values for the 1989-1991 base period.

Application: This alternative fee formula may only be applied on a westwide area basis. Application westwide uses the derived base value of \$2.93. The Formula Factor includes the technical modifications to the PRIA formula and is the product of the FVI X BCPI/ICI divided by 100. An example of the fee calculation for the 1991 fee year follows:

$$1991 \text{ Fee} = \$2.93 \times .99 = \$2.90 \text{ per head month}$$

An example of this alternative for the 3-year period, 1990-1992, is shown in Figure 4.3.

Figure 4.3: Westwide Calculated Fees for PRIA-Updated Base Value Fee System, 1990-1992

Data Year	Fee Year	Formula Factor	Calculated Fee Per Head Month
1989	1990	.90	\$2.64
1990	1991	.99	\$2.90
1991	1992	1.10	\$3.22

MODIFIED PRIA FEE SYSTEM

Description: The Modified PRIA formula uses the same technical changes that were included in the preceding alternative formula, PRIA-Updated Base Value. This alternative differs from the previous alternative through use of a base value derived from the appraised market value of public land grazing.

The annual calculated fee for grazing is derived from the following fee formula:

$$\text{Fee} = \frac{\text{BV} \times (\text{FVI} \times (\text{BCPI}/\text{ICI}))}{100}$$

Where:

BV = Base Value for pricing areas or westwide (dollars per head month) from grazing market rental appraisal.

Other Indexes = Weighted FVI, BCPI and ICI used in the PRIA-Updated Base Value Alternative Fee System

Application: This alternative fee formula may be applied on either a westwide or a pricing area basis. Application westwide uses the appraised value (advance payment) of the lowest pricing area (Area 5 = \$4.68) as the BV. Use of the lowest appraised value (\$4.68 per AUM) is based on the economic alternative cost doctrine ". . .that a buyer will not pay a fee substantially in excess of the amount that he/she must pay for his next best alternative or, conversely that an agency should receive a return at least equal to the yield that could be realized from the next best alternative use of the land (Denio, Fulcher, Powell, Rader, and Ramsbacher, 1967.)"

Two-thirds (67 percent) of the public rangeland forage (AUM's) was appraised at values higher than \$4.68 per AUM (i.e. from \$6.39 to \$10.26 per AUM.) The use of \$4.68 per AUM underprices approximately 61 percent of the forage westwide. If the updated appraised values per pricing area were weighted by the public land AUM's the westwide value would be \$6.42 per AUM. A westwide average value would over price one-half of the forage and under price the remainder.

An example of the westwide fee calculation for the 1991 fee year follows. The computation of the westwide grazing fee for the years 1990 to 1992 is shown in Figure 4.4.

$$\text{1991 Fee} = \$4.68 \times .99 = \$4.63 \text{ per head month}$$

Figure 4.4: Westwide Values of the Modified PRIA Fee System, 1990-1992

Data Year	Fee Year	Formula Factor	Calculated Fee Per Head Month
1989	1990	.90	\$4.21
1990	1991	.99	\$4.63
1991	1992	1.10	\$5.15

Application by pricing areas uses the appraised value (advance payment) as the new BV and the formula factors shown in Figure 4.4. The economic value 1990 fee computation for 1991 and 1992 by pricing area is shown in Figure 4.5.

Figure 4.5: Modified PRIA Calculated Grazing Fees for Individual Pricing Areas 1 - 6, 1990-1992

Fee Year	Formula Factor	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6
BV		\$10.26	\$6.39	\$7.74	\$6.39	\$4.68	\$6.85
1990	0.90	\$ 9.23	\$5.75	\$6.94	\$5.75	\$4.63	\$6.17
1991	0.99	\$10.15	\$6.33	\$7.66	\$6.33	\$5.10	\$6.78
1992	1.10	\$11.29	\$7.03	\$8.51	\$7.03	\$5.15	\$7.54

COMBINED VALUE FEE SYSTEM

Description: The Combined Value fee formula uses the 1966 WLGS data and the indicated westwide value of public land grazing of \$6.84 per AUM.

Updating the 1966 WLGS value to 1990 resulted in an updated base value of \$2.93 per AUM. This value was derived by subtracting the updated differential cost (i.e., the difference in costs of grazing public rangelands as opposed to leased private rangelands) from the updated 1966 private grazing land lease rate. See Appendix A.2 for the derived base value. This approach combines historically used fee value estimates with 1991 indicated westwide market value for public land grazing with equal weight. These values also could be weighted differently. Giving these values equal weight results in a base value of \$4.88.

The formula is: $\text{Fee} = \text{BV} \times \frac{(\text{FVI} \times (\text{BCPI}/\text{ICI}))}{100}$

Where: BV = Base Value derived by averaging the \$6.84 arrived at through market analysis and the \$2.93 arrived at through updating the 1966 WLGS data.

Other Indexes = Weighted FVI, BCPI and ICI used in the PRIA-Updated Base Value Alternative Fee System

Application: This fee alternative would only be applied westwide (16 western States). An example of the 1991 westwide application follows. The calculated fee for 1990 to 1992 for this alternative is shown in Figure 4.6.

$$\underline{1991 \text{ Fee} = \$4.88 \times .99 = \$4.85 \text{ per head month}}$$

Figure 4.6: Westwide Calculated Grazing Fees for the Combined Value Fee System, 1990-1992

Data Year	Fee Year	Formula Factor	Calculated Fee Per Head Month
1989	1990	.90	\$4.41
1990	1991	.99	\$4.85
1991	1992	1.10	\$5.39

MODIFIED MARKET VALUE FEE SYSTEM

Description: This alternative uses the 1983 grazing rental appraisal estimates of market value of forage as the base value and the forage value index as the annual adjustment factor. This alternative can be applied on either a westwide basis or by pricing area. The formula only considers the market value of grazing. The formula is:

$$\text{Fee} = \frac{\text{BV} \times \text{FVI}}{100}$$

Where: BV = Base Value through Market Rental Appraisal by animal class for pricing areas or westwide (dollars per head month)

FVI = Forage Value Index based on the AUM weighted private grazing land lease rate for the 16 Western States, 1989-1991 = 100

Application: The Modified Market Value fee system can either be applied on a westwide or a regional basis. A 1991 example of westwide application for mature cattle is based on the lowest pricing area values by animal class. The westwide application uses the lowest appraised value (Price Area 5 value of \$4.68 per AUM) for the reasons stated under the Modified PRIA Fee System as follows:

$$\text{1991 Fee} = \$4.68 \times .97 = \$4.54 \text{ per head month}$$

Fees may also distinguish between mature cattle, yearling cattle, and sheep. Calculated fees for the years 1990 to 1992 by animal class for westwide applications of this alternative fee system are shown in Figure 4.7.

Figure 4.7: Westwide Calculated Grazing Fees For the Modified Market Value Fee System by Animal Class, 1990-1992

Data Year	Fee Year	FVI/100	Mature Cattle 1/	Yearlings 2/	Sheep 3/
BV:			\$4.68	\$4.77	\$.95
1989	1990	0.96	\$4.49	\$4.58	\$.91
1990	1991	0.97	\$4.54	\$4.63	\$.92
1991	1992	1.07	\$5.01	\$5.10	\$1.02

- 1/ Mature Cattle based on price Area 5
2/ Yearlings based on price Area 6
3/ Sheep appraised on a westwide basis

An example of a fee for yearlings in pricing area 3 for 1991 is as follows:

$$\underline{1991 \text{ Fee} = \$6.03 \times .97 = \$5.85 \text{ per head month}}$$

The regional application would use the appraised base value by animal class for each pricing area. It would vary by region, as shown in Figure 4.8.

Figure 4.8: Calculated Grazing Fees by Animal Class and Pricing Areas with Modified Market Value Grazing Fee System, 1990-1992

Fee Year	FVI/100	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6
Mature Cattle BV:		\$10.26	\$ 6.39	\$ 7.74	\$ 6.39	\$ 4.68	\$ 6.85
1990	0.96	\$ 9.85	\$ 6.13	\$ 7.43	\$ 6.13	\$ 4.49	\$ 6.58
1991	0.97	\$ 9.95	\$ 6.20	\$ 7.51	\$ 6.20	\$ 4.54	\$ 6.64
1992	1.07	\$10.98	\$ 6.84	\$ 8.28	\$ 6.84	\$ 5.01	\$ 7.33
Yearlings BV:		\$ 7.74	\$ 5.26	\$ 6.03	\$ 5.85	\$ 4.68	\$ 4.77
1990	0.96	\$ 7.43	\$ 5.53	\$ 5.79	\$ 5.62	\$ 4.49	\$ 4.58
1991	0.97	\$ 7.51	\$ 5.59	\$ 5.85	\$ 5.67	\$ 4.54	\$ 4.63
1992	1.07	\$ 8.28	\$ 6.16	\$ 6.45	\$ 6.26	\$ 5.01	\$ 5.10

COMPETITIVE BID FEE SYSTEM

Competitive bidding is an efficient and effective system for measuring and acquiring fair market value. Such a procedure would reflect the fair market value and would account for the variations in the conditions and values related to livestock grazing. The amount that the user pays and that the public receives is equivalent to what each would be expected to pay or receive if they were private individuals involved in private transactions. It also should be recognized that major obstacles, such as changes in law and policy, would have to be overcome before competitive bidding could be implemented. The competitive bid alternative would require some legislative and regulatory changes. Two subalternatives are presented. The long-term competitive bidding system would correspond to the 10-year term permit for security of tenure. The short-term method would use a bonus-bid method that would lock fees in for the short-term permitted use period.

Long-Term Competitive Bid System, 10-Year Term Permit

Competitive bidding would be used to establish grazing fees for 10-year term permits for established allotments. Fair market value may not be achieved if there is an absence of bidding competition. Some Federal grazing leases may have only a single interested bidder; therefore, the grazing fee would be equal to a minimum acceptable bid. This process would avoid excessively low bids in case of no competition. The successful bidder's fees over the life of the contract lease (10-year bid period) may be adjusted through use of the FVI or other alternative fee adjustments, such as an index that reflects the price of hay or other feed substitutes. If fees are indexed, the formula for the annual updating of the fee is:

$$\text{Fee} = \frac{\text{BV} \times \text{Index}}{100}$$

Where: BV = Base Value derived from the competitive bid or minimum bid price

Index = Index of private grazing land lease rates or cost of alternative feed sources

Short-Term Competitive Bid System, 3-Year Term Permit

The Short-Term Competitive Bid fee system would generally follow the same procedures as the long-term pricing method. The primary exceptions are: (1) a 3-year term permit, and (2) no adjustment for market changes during the permit period. The Short-Term Competitive Bid system would implicitly reflect changes in the grazing rental market. Fair market value may not be achieved if there is an absence of bidding competition such as a single interested bidder; therefore, the grazing fee would be equal to a minimum acceptable bid. Fees during the life of the permit period would be fixed through the minimum bid price plus a bonus bid, the sum of which would establish market value. Grazing fees would be established through the following fee process.

Fee Determination:

Three Year Grazing Fee = Value set by Appraisal or Minimum Bid Price plus Bonus Bid.

ALTERNATIVE IMPLEMENTATION SCHEDULES

The impact of grazing fee changes on permittee ranchers can be graduated over time by employing alternative implementation schedules. The alternative schedules presented are: 15 percent limitation, 25 percent limitation, 33.3 percent limitation, and 50 percent limitation on the change from the previous year in any year. These rates all result in a graduated but accelerating implementation in successive years. This makes the earlier year adjustments more gentle and later year adjustments stronger as operating adjustments are made. Any change in fee policy that results in an increase above PRIA fee rates could be implemented over either a 3-, 5-, or 10-year period to reduce economic impacts. The 1992 PRIA grazing fee level is \$1.92 per animal month. Using the appraised value of \$4.68 per head month (Area 5) for illustration, Figure 4.9 shows the number of years that it would take to reach market value under the implementation schedule. The calculations make no adjustment for inflation or deflation.

The 50 percent limitation would allow the fee to reach the level of the Modified Market Value fee system in 4 years. This contrasts with the 15 percent limit which would not reach the Modified Market Value fee level until the seventh year. The degree of impact to public permittees would be inversely proportional to the speed of implementation. The amount of real Government revenues will depend on the amount of time taken to implement a change in grazing fee system. The calculations in Figure 4.9 are for illustration only and do not imply a preferred grazing fee system:

Figure 4.9: Alternative Implementation Schedules to Phase in Fee Changes
From the 1992 Grazing Fee Level \$1.92 per AUM

	----- Years to Achieve -----									
	1	2	3	4	5	6	7	8	9	10
	----- dollars per head -----									
50% Limit	1.92	2.88	4.32	4.68						
33.3% Limit	1.92	2.56	3.41	4.55	4.68					
25% Limit	1.92	2.40	3.00	3.75	4.68					
15% Limit	1.92	2.21	2.94	3.38	3.89	4.47	4.68			

The above shows a direct linear change. Annual changes in formula indexes will affect incremental increases to reach a base value above the current base.

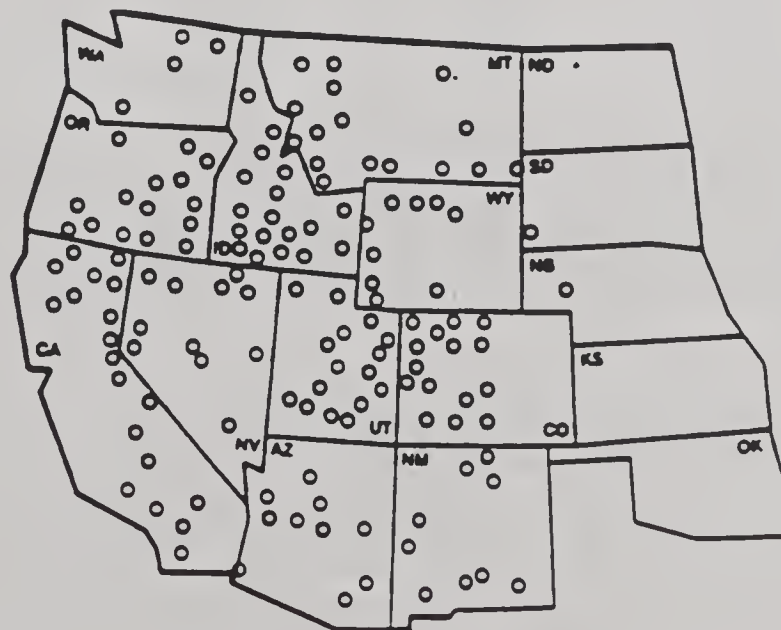
CHAPTER 5. EFFECTS OF FEE LEVEL CHANGES

This chapter provides background information and examines the sensitivity of specific factors such as: herd size, dependency of the permittee on public lands, State differences in economic conditions, short and long-term impacts and the economic viability of ranching operations.

PERMITTEE INCOME EFFECTS

Average Ranch Budgets: The analysis of economic effects on permittees is based on a USDA ERS analysis of representative ranch budgets. The ERS developed 427 cattle budgets and 73 sheep budgets and these were aggregated to represent typical permittees' ranching operations in 13 Western States (Gee, 1984). Areas on which budgets were prepared are shown in Figure 5.1. The 1982 State budgets were indexed to 1990 for each State. These were aggregated to develop a 13 State average cattle budget and a nine State average sheep budget. The average budgets were used to develop a computer program that examined the changes in total sales, net returns above cash costs, and net returns with all costs covered, including capital replacement costs, as a result of changes in the grazing fee. A short-run analysis focuses on the returns above cash costs since cash costs must be covered for the rancher to remain in business. The rancher often can postpone payments for capital replacements, returns to management, and family labor. Therefore, if cash costs are covered, the rancher can stay in business, at least in the short run. In the long run, equipment must be replaced and some return must be given to land and management if the rancher is expected to stay in business. The analysis examines short-term economic effects, long-term economic impacts when all costs must be paid under present technology and current market and financial conditions.

Figure 5.1: Geographic Locations Represented by Ranch Enterprise Budgets



○ AREAS WITH RANCH BUDGETS

Permittee Dependency On Federal Forage: The level of dependency is important in analyzing the effects of fee changes on a livestock business. A cow herd that is dependent on Federal rangeland for 50 or more percent of its annual feed supply will be affected more by a fee increase than a herd that depends on the Federal range for only 10 percent of its feed supply. Figure 5.2 shows the average level of dependence of permittee businesses on the Federal rangelands and the total number of permittees. It is important to note that the data are based on the total forage needs of the producer's livestock herd rather than the amount of range grazing required. Producers in the arid southwest are the most dependent. In these States, where large amounts of Federal lands exist, many producers graze public rangelands yearlong. Cattle producers in Arizona, New Mexico, Nevada, and Utah average more than a 30 percent level--with Arizona the highest at 60 percent. Montana permittees have the lowest dependence level for cattle--averaging only 11 percent. The median dependency level is 23 percent. The states of Idaho, Oregon, and Wyoming are at this level. Most sheep producers with permits are heavy users of public rangeland. Those in New Mexico are dependent for almost half their feed supply. Utah and Nevada also are high, averaging more than 40 percent.

Figure 5.2: Average Dependency Level of Permittee Livestock Businesses on Federal Rangeland for Annual Feed Supply in 13 Western States

	-----Dependency 1/ Cattle Sheep 3/ Percent Percent		-----Permittees 2/--- Number Percent of Total	
Arizona	60	*	1090	4
California	15	24	1465	6
Colorado	25	37	2670	10
Idaho	23	35	3675	14
Montana	11	35	4710	18
Nebraska	13	*	120	--
Nevada	36	43	930	3
New Mexico	44	49	3000	11
Oregon	23	27	1790	7
South Dakota	12	*	640	2
Utah	35	47	3110	12
Washington	13	*	450	2
Wyoming	23	29	2940	11

1/Dependency is defined as AUM's of feed provided by Federal rangeland divided by total annual AUM's required by the entire livestock herd.

2/Forest Service and Bureau of Land Management Records

3/Sheep budgets were not prepared in these States (*) due to low numbers of sheep grazing public rangelands.

Source: Gee, 1984

Changes in Returns Above Short-Term Cash Costs: The short-term changes in returns above cash costs (net ranch cash income) on the average permittee livestock operation in 13 Western States are shown in Figure 5.3. These impacts are based on permittee livestock enterprise budgets collected and analyzed by the USDA's ERS for the FS and BLM. When the grazing fee was increased from \$1.81 to \$9.19 per AUM, net returns above cash costs declined. This reflects the increased cost of forage and associated interest on operating capital. In 1990 the results show a positive return in every case. In the short-term, the average producer would be able to cover production costs while maintaining current herd levels.

In the short-term herd, size and gross income remain constant under each fee level, but may change over a longer period (Gee, 1984). This also assumes that permittees would be able, in the short run, to defer cash interest costs on any intermediate or long-term debt.

Figure 5.3: Changes in Returns Above Variable Cash Costs for an Average Livestock Operation at Different Fee Levels, 1990

State	Returns Above Cash Costs At Different Fee Levels 1/						
	Gross Income	PRIA 1990	UPDATED PRIA	MODIFIED MARKET VALUE	COMBINED MARKET VALUE	NASS PRIVATE LEASE RATE	1990
		\$0.00	\$1.81	\$2.93	\$4.68	\$4.88	\$9.19
Cattle:							
							dollars per cow-----
Arizona	291	171	154	143	126	124	83
California	345	133	126	121	114	114	96
Colorado	396	163	156	152	145	144	128
Idaho	333	111	105	101	95	94	80
Montana	409	179	176	174	171	171	164
Nebraska	422	208	205	203	200	200	192
Nevada	305	127	115	108	97	96	69
New Mexico	348	202	189	181	169	167	137
Oregon	367	172	166	162	156	155	141
S. Dakota	345	103	100	98	95	94	87
Utah	326	133	128	122	113	111	88
Washington	393	155	151	149	146	145	137
Wyoming	391	178	172	168	163	162	148
3 State Average	364	159	152	148	141	140	124
Sheep 3/							
							dollars per ewe-----
California	58	19	18	17	16	16	13
Colorado	61	23	22	21	19	19	15
Idaho	61	27	26	25	23	23	19
Montana	57	19	18	17	16	16	12
Nevada	58	32	30	28	26	26	21
New Mexico	53	18	15	14	12	11	6
Oregon	61	7	6	5	4	4	1
Utah	58	25	23	21	19	18	13
Wyoming	59	20	19	18	17	17	14
State Average	59	24	22	21	20	20	16

Cash costs do not include value of family labor, capital replacement allowance (depreciation) or interest on intermediate or long-term debt.

Assumes free grazing.

Sheep budgets were not prepared for Arizona, Nebraska, South Dakota, or Washington due to low numbers of sheep grazing public lands in these States.

Changes in Returns Above All Costs: Figure 5.4 shows the impact of increased grazing fees on dollar returns above all costs on a per cow or ewe basis where all costs must be paid, if the permittee is to stay in business. This analysis does not attempt to estimate economic impacts under a long-term projected situation. It simply shows, under 1990 conditions at varying fee levels, the economic impact (i.e. reduced returns above all costs) when all costs must be paid. The analysis uses average ranch budgets indexed by ERS for the year 1990 adjusted for a ten percent debt/asset relationship. Economic conditions for the livestock industry in 1990 are improved from the 1982 conditions reflected in the 1986 fee report.

Figure 5.4: Changes in Returns Above All Costs for an Average Livestock Operation at Different Fee levels, 1990

Returns Above All Costs At Different Fee Levels								
			1/	2/	3/			
			PRIA	UPDATED	MODIFIED	COMBINED	1990	
			1990	PRIA	MARKET	MARKET	PRIVATE	
					VALUE	VALUE	LEASE	
							RATE	
State	Gross Income	\$0.00	4/ \$1.81	\$2.93	\$4.68	\$4.88	\$9.19	
Cattle:								
								dollars per cow
Arizona	291	88	70	59	43	40	-1	
California	345	48	41	36	29	28	11	
Colorado	396	60	53	49	42	41	25	
Idaho	333	11	5	1	-5	-5	-20	
Montana	409	88	85	83	80	80	73	
Nebraska	422	104	101	99	96	96	88	
Nevada	305	46	35	28	17	15	-12	
New Mexico	348	110	97	89	77	76	45	
Oregon	367	93	87	83	77	76	62	
S. Dakota 5/	345	-14	-18	-19	-23	-23	-30	
Utah	326	31	21	15	6	5	-19	
Washington	393	22	27	16	13	12	4	
Wyoming	391	73	67	63	58	57	43	
13 State Average	364	65	58	54	47	46	30	
Sheep 6/								dollars per ewe
California	58	2	1	1	0	-1	-3	
Colorado	61	8	7	6	4	4	0	
Idaho	61	9	7	6	5	4	1	
Montana	57	0	-1	-2	-4	-4	-7	
Nevada	58	14	11	10	8	8	2	
New Mexico	53	-4	-6	-7	-10	-10	-15	
Oregon	61	-17	-19	-19	-21	-21	-24	
Utah	58	6	4	3	0	0	-6	
Wyoming	59	3	1	1	-1	-1	-4	
9 State Average	59	5	4	3	1	1	-3	

- 1/ All costs include standard cash costs, interest on intermediate and long-term debt value of family labor and capital replacement allowance (depreciation).
- 2/ In the update of the budgets, the quantities of inputs (e.g., amount of fuel purchased) and outputs (e.g. lbs of beef) were held constant. (i.e. no technical changes).
- 3/ Returns are adjusted for 10 percent debt/asset ratio. This ratio is based on data from beef cattle operations in the 13 western states with gross sales of \$40,000 or more (at least one half of which are from beef cattle sales) who reported leased grazing on an AUM basis (source: 1990 Farm Costs and Return Survey).
- 4/ Assumes free grazing.
- 5/ South Dakota sold fewer pounds of beef than other States and had relatively higher hay costs.
- 6/ Sheep budgets were not prepared for Arizona, Nebraska, South Dakota, or Washington due to low numbers of sheep grazing public lands in these States.

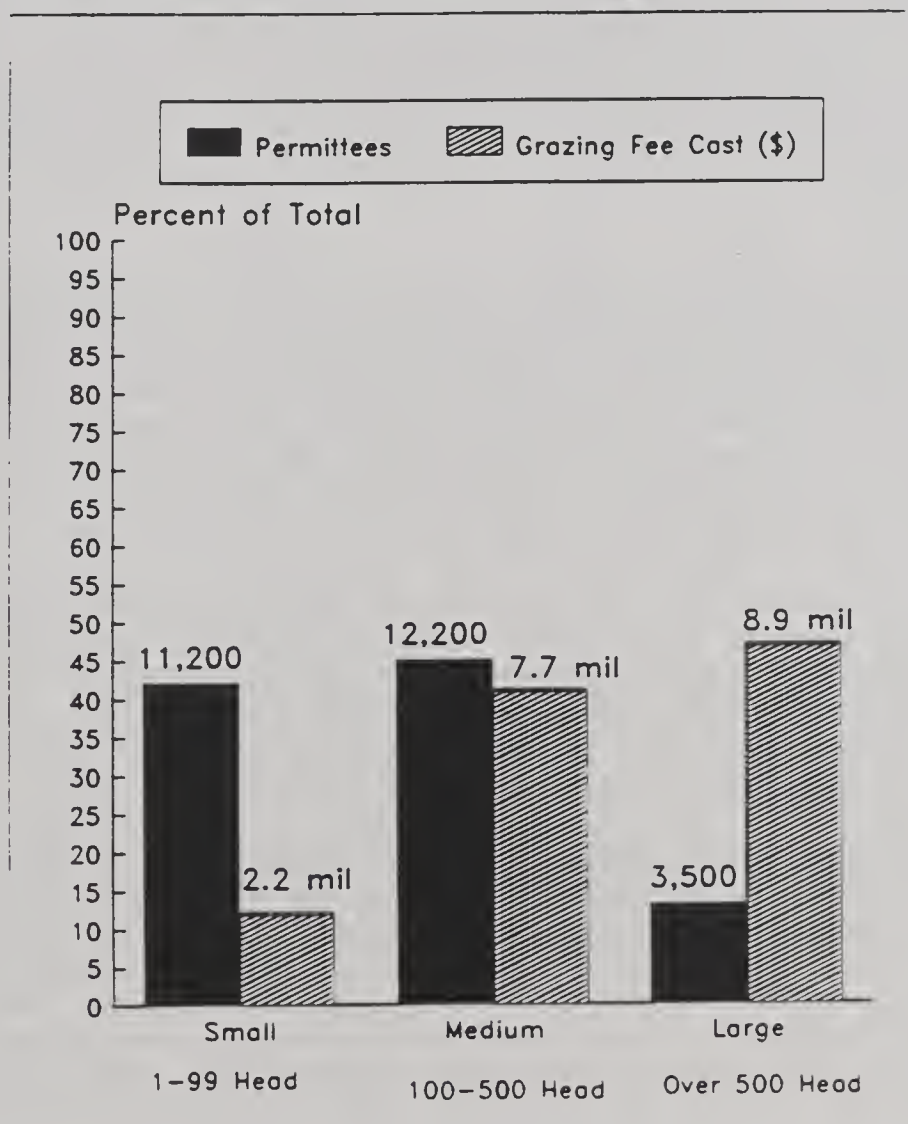
The interest on debt included in the calculation of all costs is based on the assumption that level of indebtedness for permittees is about the same as it

s for all of the Western livestock industry. The data show that returns above all costs are negative for the average permittee cattle operation in South Dakota at all fee levels. Additionally, net returns are negative for Arizona, Idaho, Nevada, and Utah at NASS's 1990 private land lease rate. Average sheep operations show negative returns at various fee levels for California, Montana, New Mexico, Oregon, Utah, and Wyoming.

Distribution of Aggregate Financial Impacts. Figure 5.5 shows the distribution of permittees and grazing fee costs by permittee herd size shown in Figure 1.2. The aggregate financial impact of a change in grazing fees varies proportionately with the distribution of AUM's. An increase in fees of \$1 per AUM would increase total grazing fee costs to the FS and BLM permittees by about \$17.4 million.

About \$8.9 million (51 percent of the \$17.4 million) would be paid by 3,500 permittees in the large permittee size class. These permittees represent 15 percent of all permittees. About 11,200 small livestock permittees, who represent 48 percent of the permittees, would pay about \$2.2 million or about 3 percent of the total dollar increase in fees. The \$7.7 million balance of the total fee increase would be paid by about 12,200 medium herd size permittees, representing 37 percent of the permittees.

Figure 5.5: Distribution of Permittees and a \$1 Increase In Fee Costs by Herd Size Class for All Permittees ^{1/}



^{1/} Fourteen percent of 26,900 permittees have both FS and BLM grazing permits, therefore, the total number of operations is 23,645.

Figure 5.6: Impacts of Alternative Grazing Fee Levels on Cattle Enterprise's Return Above Variable Cash Costs of Public Rangeland Permittees, 1990 ^{1/}

Grazing Fee	-----Combined FS/BLM-----		
	Small	Medium	Large
-----dollars per cow ^{2/} -----			
\$1.81 1990 PRIA Fee	148	150	189
\$2.93 Updated PRIA	133	144	184
\$4.68 Modified Market	124	136	177
\$4.88 Combined Market Value	123	135	176
\$9.19 Private Lease Rate ^{3/}	101	114	158

- ^{1/} Cash Costs do not include value of family labor, capital replacement allowance (depreciation) or interest on intermediate or long-term debt.
- ^{2/} Rounded to nearest one dollar.
- ^{3/} 1990 \$/AUM (National Agricultural Statistics Service)

"There are economies of size in livestock production which can affect a permittee's ability to assimilate fee increases (Gee, 1984)." Enterprise costs and returns for different sizes of cattle and sheep herds prepared by the ERS indicate that larger herds usually have lower costs per head and large returns above cash costs than smaller herds as well as a lower dependency level. This is also illustrated by livestock budgets prepared by the ERS for FS and BLM permittees. This gives the permittees with large herds more flexibility in diverting additional resources to pay higher grazing fees.

"Since larger herds generally depend less on public rangelands than medium or small herds and usually have higher returns above cash costs, they should be impacted less by fee increases. Returns above cash costs as fees increase are reduced much less with large herds than with small herds. In most geographical areas [in the 16 Western States] this pattern of response occurred. In the few exceptions [of] higher dependencies with large [livestock] herds [fee increases] resulted in greater . . . impacts on returns above cash costs (Gee, 1984)."

Generally, BLM permittees with medium size herds and FS permittees with large size herds are more economically efficient since they have higher returns above cash costs per cow. Fee changes may cause some changes in the size of cattle herds and possibly some nonuse of Federal rangelands. This will occur in each of the size groups, but predominate in the medium herd size groups of FS permittees and the small herd size group for the BLM.

Fee Costs, Forage Dependency and Livestock Prices: The level of dependency and percentage that grazing fee costs are of total cash costs are primary indicators of the potential economic impact of fee level changes. Figure 5.7 compares economic impacts under situations of high, low, and median (mid level) dependency on public rangeland forage. Of the 13 Western States included in the ERS analysis, the average Arizona cattle operation, at 60 percent, has the highest level of forage dependency. The average cattle

operation in Montana, at 11 percent, is the least dependent. The average cattle operation in Idaho, at 23 percent, is at the median level of dependency. Idaho is shown for comparison purpose, but Oregon and Wyoming permittee livestock producers also depend on public rangeland forage for 23 percent of their total livestock forage supply. (See Figure 5.2 for number of permittees and average dependency of other States.)

grazing fee costs, at \$1.81 per AUM, are 3 percent of the cash costs for operations with a median forage dependency of 23 percent. Increasing fees to \$4 per AUM, increases the percentage to 6 percent of total cash costs. The percentage that fee costs are of cash costs reaches 25 percent, with 60 percent dependency (Arizona) and a fee of \$4 per AUM. For the average Montana cattle permittee with 11 percent dependency, fees are 3 percent of total cash costs at a \$4.00 fee level. It should be kept in mind that these comparisons are based on average livestock operations for the States and that the full range of forage dependency exists within any one of the States.

Figure 5.7: Comparison of Grazing Fee Costs for an Average Cattle Operation at Different Dependency and Grazing Fee Levels, 1990

State	Dependency 1/	-----\$1.81 Fee-----			-----\$4.00 Fee-----		
		Fee Cost 2/	Cash Cost 3/	Percentage of Cash Cost	Fee Cost	Cash Cost	Percentage of Cash Cost
	%	(---\$/Cow---)				(---\$/Cow---)	
Arizona	60	\$16	\$121	14	\$37	\$142 4/	26
Montana	11	\$ 3	\$230	1	\$ 6	\$233	3
Idaho	23	\$ 6	\$222	3	\$13	\$230	6

Dependency is AUM's of feed provided by Federal rangeland divided by total annual AUM's required by the entire livestock herd.
 Total number of federal AUM's per cow multiplied by fee.
 Arizona example: 9 AUM's per Cow x \$1.81 = \$16.47 (\$16 rounded).
 Cash costs exclude value of family labor, capital replacement allowance (depreciation), and interest on intermediate or long-term debt.
 Amount is more than the increase in fee cost due to inclusion of interest on operating capital.

livestock enterprise returns are much more sensitive to changes in livestock prices than they are to changes in grazing fees. According to the ERS ranch enterprise budgets, the median Idaho cattle operation produces about 306,000 pounds of beef annually and has a grazing fee bill of \$3,795 at a fee of \$1.81 per AUM. Increasing the fee to \$4 per AUM increases the grazing bill to \$4,592 annually. A 2 cents per pound increase in livestock prices, under 1990 prices and costs of production, would increase gross sales by \$6,120 and would be more than enough to off-set the increase in the cost of the federal grazing fee. A decrease in other livestock production costs such as feed and gains also would tend to offset any increase in Federal grazing fees.

The Arizona average permittee cattle operation (60 percent dependency) produces about 210,000 pounds of beef annually and has a grazing fee bill of

\$8,953 at a fee of \$1.81 per AUM. An increase in fees by \$2.19 per AUM to the \$4/AUM fee level would increase total fee costs by \$10,832 annually. A little more than 5 cents per pound increase in live-weight beef cattle prices, under 1990 prices and costs of production, would be required to offset the increase in fees. The increased cost does not include interest on the increased fee cost.

There is a wide range in profitability among livestock enterprises within a State, as well as between States; and this affects the potential economic impact of fee changes. Variable factors of location, climate, topography and/or physiography, along with management, and resource availability, will affect the economics of each livestock enterprise. In 1990, as shown in Figure 5.8, gross income per cow, total cash costs and forage dependency vary widely for the States shown. All of these factors affect how grazing fee changes will impact permittees.

Figure 5.8: Comparison of Gross Income and Costs of Livestock Production at \$1.81 Grazing Fee, 1990

	Arizona	Idaho <u>1/</u>	Montana
-----Dollars Per Cow-----			
Gross Income	\$291	\$333	\$409
Total Cash Costs	\$137	\$228	\$233
Feed Costs	\$ 37	\$110	\$117
Grazing Fees	\$ 16	\$ 6	\$ 3
Return Above Cash Cost	\$154	\$105	\$176
-----Percent-----			
Federal Forage Dependency <u>2/</u>			
	60	23	11

1/ Median for 16 Western States

2/ Percent public rangeland forage is to the 12 month feed requirement for the livestock herd.

Effects on Permittee Asset Values: The public land permittees have tenure and use of public land grazing permits. Grazing permits are generally tied to the base property. When base property is sold, the FS requires the grazing permit to be waived to the Government. Permits are generally reissued to the purchaser of the base property. The permit value is the result of permittee capitalization of the difference between the fee paid for grazing on public lands and the market rental value of the grazing over time. The permit value is commonly considered in the private sector as the permittee's property. It is included in the market price and loan value of the property. It is substantially discounted by lenders. The permittees contend that the premium paid to the outgoing permittee is a legitimate cost of doing business on the public rangelands and should be considered in establishing grazing fees.

of the changes in the value of the permit. There is no information on the correlation between the change in permit value and change in grazing fees. Figure 5.9 shows the 1983 value of the permit observed in the grazing rental appraisal.

Figure 5.9: Value of the Public Land Permit Observed in the Grazing Rental Appraisal, 1983

STATE	BLM/FS AUM's	LOW	HIGH	AVERAGE
		-----per head month-----		
Arizona	1,804,369	\$75	\$300	\$114
California	944,597	\$35	\$92	\$53
Colorado	1,597,434	\$50	\$200	\$75
Idaho	2,747,787	\$30	\$150	\$60
Kansas <u>1/</u>	120			
Montana	1,837,335	\$47	\$133	\$76
Nebraska	85,334	\$120	\$150	\$140
Nevada	2,743,959	\$33	\$45	\$40
New Mexico	2,880,010	\$35	\$348	\$103
North Dakota	261,363	\$50	\$ 60	\$53
Oklahoma <u>1/</u>	475			
Oregon	1,442,014	\$56	\$60	\$56
South Dakota <u>1/</u>	95,814			
Utah	2,425,300	\$42	\$100	\$50
Washington <u>1/</u>	79,315			
Wyoming	2,594,592	\$45	\$75	\$49
TOTAL <u>2/</u>	21,539,818			
Weighted Average <u>3/</u>				\$68

- 1/ Not available or limited observations
2/ Total AUM's as reported in the appraisal.
3/ Weighted by AUM's (minus AUM's in Oklahoma, South Dakota, Washington, and Kansas)

CHAPTER 6. EVALUATION OF ALTERNATIVE FEE SYSTEMS AGAINST CRITERIA

Amendment No. 221, 1992 Appropriations Bill for Department of Interior and Related Agencies (Forest Service), required an update of Figure 6.6 in Chapter 6. Figure 6.1 was updated because the potential revenue which might be generated from alternative grazing fee formula is of interest. None of the other tables were updated and therefore they were excluded from this report.

Revenue Projections

The various grazing fee options have the potential to generate different revenues to the Federal Government. Figure 6.1 shows the relative fee levels and resulting 1991 Government revenues for the fee options for which the fee can be directly calculated. The calculations are based on 17.4 million AUM's of 1990 actual grazing use, and assumes this level of forage would be demanded at the various alternative fee levels. These revenue projections are estimates. Depending upon the elasticity of demand for Federal forage the revenues may be less than projected.

The Modified PRIA, the Modified Market Value, and the Combined Value fee systems result in about the same level of Government revenue, approximately \$80 to \$84 million. The current PRIA fee system generated revenues of \$34.3 million in 1991. Had the PRIA-updated fee system been in effect it would have generated revenue of approximately \$50 million.

Figure 6.1: Westwide Grazing Fee System Values and Revenues

Fee System	1991 Value	1991 Revenue 1/ 2/
PRIA	\$1.97	\$34,278,000
PRIA-Updated Base Value	\$2.90	\$50,460,000
Modified PRIA	\$4.63	\$80,562,000
Combined Value	\$4.85	\$84,390,000
Modified Market Value--Mature Cattle	\$4.63	\$80,562,000

1/ Assumes that all AUM's will be taken at these fee levels. However, as fees increase, even at these levels, there may be some decrease in forage demand. The extent of this decrease cannot be projected with any degree of certainty. Figures are rounded.

2/ Assumes no constraint (+ or - 25% from previous year fee).

EQUITY AMONG LIVESTOCK PRODUCERS

Another consideration in evaluating the Federal grazing fee is its impact on livestock producers who do not have access to public rangeland grazing allotments. Theoretically, to be equitable, the fee system should be neutral between the public rangeland permittees and nonpermittees. By definition, if costs for public rangeland permittees are lower than market value, the permittees will have an economic advantage over nonpermittees. These advantages may be reflected in higher profit margins, in lower overall prices, in an incentive to graze more livestock, or in the mix of AUM's grazed.

Figure 6.2:

(Formerly 6.6) Comparison of Cash Receipts, Costs, and Receipts Less Cash Costs For Federal Permittees and Western Livestock Industry Producers, 1990

	Federal Permittee Livestock Producer (Fee @ \$1.81) (\$/Cow)	Western Livestock Industry Producer (\$/Cow)	Net Difference (Permittee To Industry) (\$/Cow)	Ratio Of Federal Permittee To Industry
Cash Receipts	364.14	408.35	-44.21	0.892
Federal Fee	6.55			
Other Cash				
Costs	205.56			
Cash Costs	212.12	246.52	-34.41	0.860
Capital Replacement	41.14	28.07	13.07	1.465
Receipts less Cash Costs	152.02	161.82	-9.80	0.939
Receipts less Cash Costs and Capital Replacement	110.88	133.75	-22.87	0.829

Percent Federal Fees Are Of Cash Cost: 3.09% or 3%

Source: USDA Economic Research Service, "The Economic Impact of Alternative Federal Grazing Fees on Western Livestock Businesses, 1984; Table 15 (corrected), Federal Permittee "Gee" Budgets and Tables D1-D3, Western Industry Livestock Enterprise Budgets (Cost of Production Survey-COPS)

The ERS ranch budget data show that in 1990, Federal grazing permittees in the Western states: (1) had cash receipts that were 11 percent lower than the industry producers, (2) had 14 percent lower cash costs than industry producers; (3) encountered 47 percent higher capital replacement costs than the industry producers, and (4) realized receipts less cash costs that were only 6 percent lower than the industry. When replacement costs are added to cash costs, residual receipts for permittees dropped to 17 percent lower than the industry.

The data in Figure 6.6, developed by ERS for permittees from the "Gee" ranch budgets and for the Western Industry producer from the COPS ranch budgets, reflect residual receipts in the short-term. The indexing procedures does not allow for new statistical hypothesis testing of the difference in the mean cash receipts, or any other differences, between permittee and other Western producers. However, the difference in means [averages] shown for permittee's and the Western Livestock Industry's [receipts and costs] are not likely to be statistically different in 1990 in view of the large variation observed in the industry. This does not alter the finding of the 1966 Western Livestock Grazing Survey that there is the existence of a large variation within area, groups, or even regions that is as great as between those regions. The ranch budget data, therefore, continues to represent a large, diverse population of Western States livestock producers.

The data in Figure 6.6, developed by ERS for permittees from the "Gee" ranch budgets and for the Western Industry producer from the COPS ranch budgets, reflect residual receipts in the short-term. The indexing procedures does not allow for new statistical hypothesis testing of the difference in the mean cash receipts, or any other differences, between permittee and other Western producers. However, the difference in means [averages] shown for permittee's and the Western Livestock Industry's [receipts and costs] are not likely to be statistically different in 1990 in view of the large variation observed in the industry. This does not alter the finding of the 1966 Western Livestock Grazing Survey that there is the existence of a large variation within area, groups, or even regions that is as great as between those regions. The ranch budget data, therefore, continues to represent a large, diverse population of Western States livestock producers.

UPDATE OF THE 1986 GRAZING FEE REPORT

In conjunction with the 1992 Appropriations Bill Amendment No. 221, a working group involving the BLM, FS, National Agricultural Statistics Service, and Economic Research Service was assigned to update the fee report for the Secretaries of Agriculture and the Interior.

CHAIRMAN: David O'Neal, Assistant Secretary of the Interior
Land and Minerals Management

Coordinator, Daniel Talbot, Deputy Assistant Secretary of the Interior
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WORKING GROUP:

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Robert M. Williamson, Director, Range Management Staff, USDA Forest Service

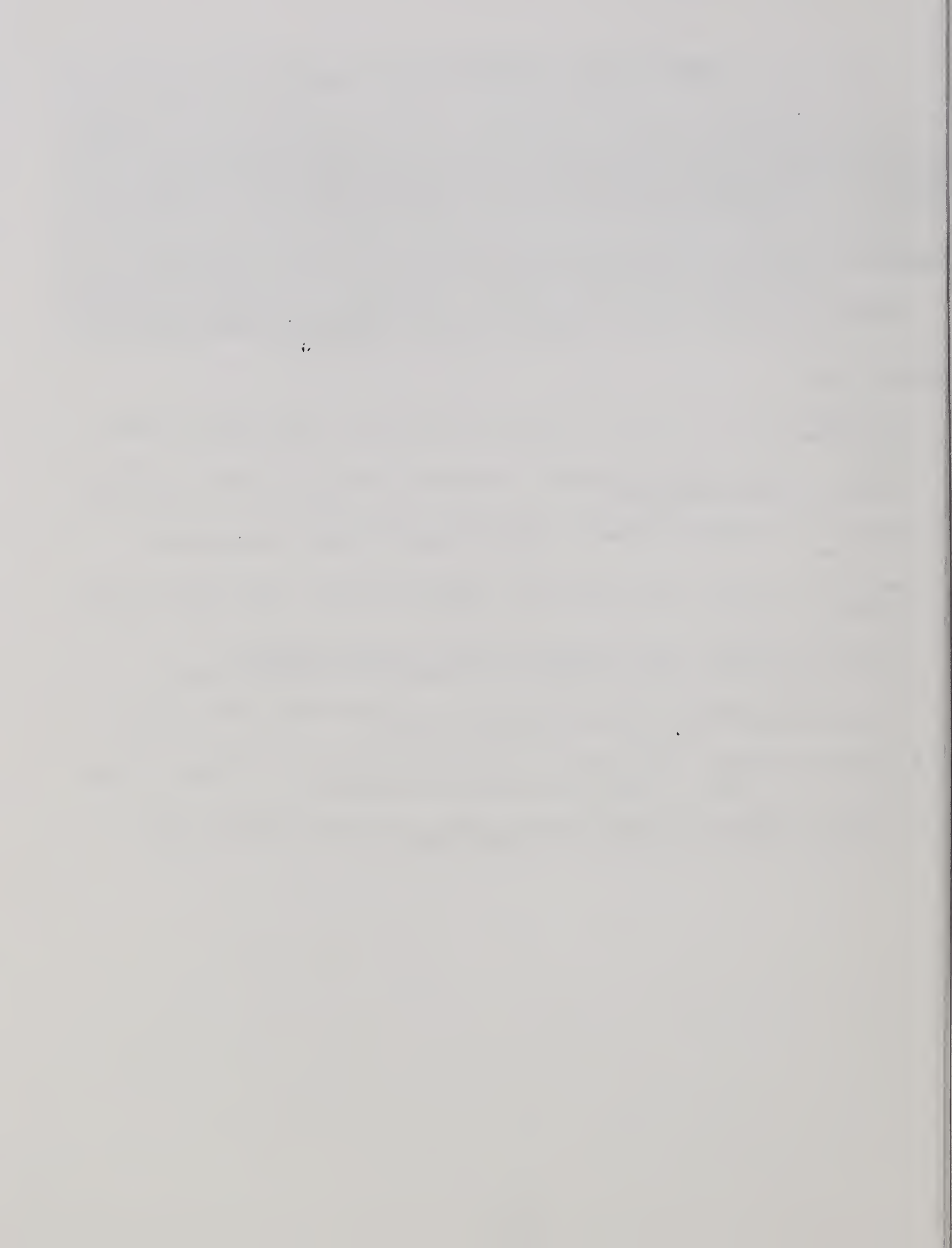
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APPENDIX

DERIVATION OF UPDATED 1966 BASE VALUE
for the
PRIA-UPDATED BASE VALUE FEE SYSTEM ALTERNATIVE

The PRIA-Updated Base Value fee formula uses a base value derived by indexing private lease rate and cost data from the 1966 Western Livestock Grazing Survey (WLGS). The 1966 WLGS established a base value of \$1.23 per AUM.

Comparison of the cost of grazing on private land (including lease rate) with the cost of grazing on public land (excluding the grazing fee) showed an overall difference of \$1.60 per Animal Unit Month (AUM) for cattle. But, the average lease was smaller, in terms of AUM's, than the average public grazing permit. The range in size of leases and permits was about the same. When the cost data for private land were adjusted to the distribution of AUM's by season of use and size of permit on public land, the difference dropped to \$1.26 per AUM. The overall difference for sheep was \$1.15 per AUM. After adjustment for season of use and size, it was \$1.13 per AUM. The weighted average for cattle (80 percent) and sheep (20 percent) was \$1.23 per AUM.

The weighted average for the private land lease rate was \$1.78 per AUM. Thus, the \$1.23 was a 31 percent downward adjustment for the average difference between public and private land for such factors as landlord services and level of investment. The public and private lands had the same general range of difference in these factors, but since the average was different, an adjustment was required.

Figure 1 shows the updating of the 1966 WLGS private grazing land lease rate of \$1.78 per AUM to \$4.52 per AUM. The updated (1989-1991 base) private land lease rate of \$4.52 is derived by multiplying the 1966 WLGS value of \$1.78 by the 16 State Forage Value Index (FVI) of 254. The 254 FVI is derived by dividing the USDA National Agricultural Statistics Service (NASS) weighted average 1989-91 of Private Land Lease Rate of \$8.83 per AUM by the (1964-1968) weighted average lease rate of \$3.48 per AUM. Both of these private land lease rates are weighted by the 16 Western States public land AUM's.

Figure 1: 1990 Updated Private Grazing Land Lease Rate.

WLGS 1966 Private Grazing Lease Rate = \$1.78/AUM

Weighted average for 16 States: 1964-1968 = \$3.48/AUM

1989-1991 = \$8.83/AUM

Forage Value Index = \$8.83 divided by \$3.48 = 2.54 x 100 = 254

Updated 1966 private lease rate to 1990 = \$1.78/AUM x 254 = \$4.52/AUM

Figure 2 shows the updating of the 1966 nonfee cost difference to the 1989-1991 base period. The updated (1989-1991) nonfee cost difference of \$1.59 per AUM is derived by multiplying the nonfee cost difference for sheep and cattle by the 1989-1991 Input Cost Index (ICI) of 289.

Figure 2: Updated 1966 Nonfee Differential Costs.

	<u>Cattle</u>		<u>Sheep</u>	
	Public	Private	Public	Private
Total Nonfee Costs	\$3.28	\$2.75	\$4.53	\$3.89
Input Cost Index <u>1/</u>	<u>x 289</u>	<u>x 289</u>	<u>x 289</u>	<u>x 289</u>
	\$9.48	\$7.95	\$13.09	\$11.24
Cost Difference		\$1.53		\$1.85
		<u>x .80</u>		<u>x .20</u>
		\$1.22		\$.37

Cattle and sheep nonfee costs weighted difference = \$1.59 (\$1.22 + .37)

1/ Input Cost Index is the average index for the base years 1989-1991.

Derived Base Value: The 1989-1991 updated value of \$2.93 per AUM is derived by subtracting the updated (1989-1991) nonfee cost of \$1.59 per AU from the updated (1989-1991) private lease rate of \$4.52 per AUM or (\$4.52 - 1.59 = \$2.93 per AUM.)

Appendix A.2

DERIVATION OF BASE VALUE for the COMBINED VALUE FEE SYSTEM

Indicators of 16 Western States private grazing lease rates were documented by the FS and BLM appraisers in a supplemental report. For details of the market analysis see: Appraisal Report Estimating FAIR MARKET RENTAL VALUE OF GRAZING PUBLIC LANDS, U.S. Forest Service and Bureau of Land Management, Vol. 2, Appendix 15, page 15-6, Oct. 1983. Figure 1 shows the 1991 updated figures:

Figure 1: Indicated 1991 Westwide Market Value

Year	Private Land Lease Rate	Indicated Westwide Public Grazing Value
1991	\$8.00**	\$6.84

The Westwide value of \$6.84, is derived by adjusting the private lease rate of \$8.00 by 5 percent for "conditions of use" and 10 percent for advanced payment.

The \$8.00 private land lease rate was derived by a market analysis that indicated that westwide private land lease rates increased in a range of \$.81 to \$1.11. Therefore, a \$1.00 increase was used to update the \$7.00 westwide value used in 1983. The contract appraisers "do not believe that a single westwide estimate would represent a fair measure of value of grazing on public rangelands."

Derivation of the base value for the Combined Value Alternative Fee System is the arithmetic (mean) average of the indicated westwide value of grazing on public rangelands (\$6.84) and the 1966 base value updated on a 16 States basis (\$2.93). Based on economic theory, the two values should be the same, but they differ for a variety of reasons, including differences in methodology, data collection and sampling techniques, statistical analysis of the data, and structural cost changes over time. The true economic base value for the alternative fee system is probably somewhere between the two extremes. For illustration purposes an average value is computed as shown in figure 2.

Figure 2: Derived Base Value for Combined Value Fee System.

---item---	---values---
Grazing Rental Appraisal of Public Rangeland Grazing:	\$6.84/AUM
Updated 1966 WLGS Residual Value:	<u>\$2.93/AUM</u>
Total Value:	\$9.77
Derived Base Value	$\$9.77 / 2 = \$4.88/\text{AUM}$

APPENDIX B

Figure B.1: BLM Public Lands in the Western United States



Figure B.2: Forest Service Lands in the Western United States

Public Rangelands Managed by the Forest Service, U.S. Department of Agriculture

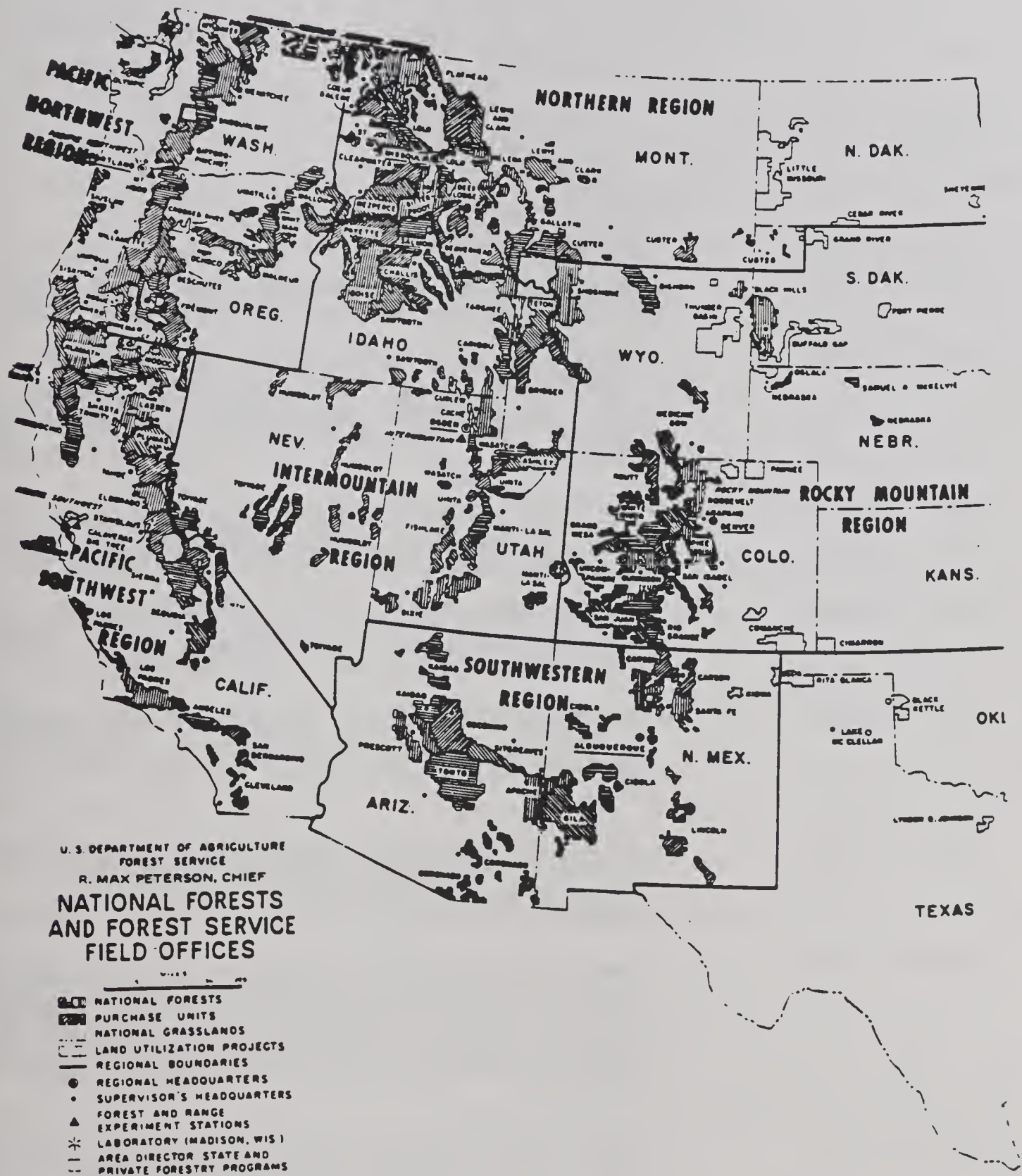


Figure B.3 Information on Purchasing Grazing Fee Study Background Studies
Studies Available Through National Technical Information Service (NTIS):
 The grazing fee study background documents listed below may be ordered
 from:

U.S. Department of Commerce

National Technical Information Service

Springfield, Virginia 22161

Rush Service: 800-336-4700

Information: 703-487-4660

<u>Accession Number</u>	<u>Title, Author</u>
PB85-128-296	<u>Evaluation of the Forage Value Index</u> , USDI, Bureau of Land Management, 1984 (\$16.00)
PB85-128-304	<u>Potential Impacts on Local Income and Employment of a Change in the Federal Grazing Fee (Case Studies of 13 Areas in the West)</u> , USDA, Economic Research Service, 1984 (\$11.50)
PB85-128-312	<u>The Impact of Alternative Federal Grazing Fees on Western Livestock Businesses</u> , USDA, Economic Research Service, 1984 (\$13.00)
PB85-128-320	<u>A Theoretical Evaluation of the Fee Systems for Private Grazing on Federal Lands</u> , USDA, Economic Research Service, 1984 (\$14.50)
PB85-128-338	<u>Estimated Impacts of Income and Employment in 13 Western States of Changes in the Federal Grazing Fee</u> , USDA, Forest Service, 1984 (\$14.50)
PB85-128-346	<u>An Evaluation of the Beef Cattle Prices and Prices Paid Indexes Used in the Federal Grazing Fee Formula</u> , USDA, Statistical Reporting Service, 1984 (\$10.00)
PB83-237-248	<u>Grazing Lease and Fee Arrangements of Western Governments and Agencies--a Study of Western State, Local Governments, and other Federal Agencies Grazing Lease Arrangements and User Charges</u> , Colorado State University, 1983 (\$23.50)
PB84-242-205	<u>Fair Market Rental Value of Grazing on Public Lands</u> , USDI, Bureau of Land Management, and USDA, Forest Service, 1984 (\$61.50)

Figure B.3 continued

The appraisal data base may also be ordered from the NTIS on computer tape or microfiche. The computer data base is supplied complete with a copy of the appraisal. Buyers of the microfiche should be warned that a copy of the appraisal report is necessary in order to use the microfiche reports. Costs and accession numbers follow.

<u>Accession Number</u>	<u>Description</u>
PB84-237-262	Computer tape and appraisal report. The computer tapes can be obtained in different densities and formats to accommodate use on different tape drives. Information can be obtained by calling Clara Cannon at (703) 487-4929 (\$240.00 to \$332.00)
PB84-242-213	Microfiche data base for all States (\$40.00)
PB84-242-221	Microfiche data base for Arizona (\$4.50)
PB84-242-239	Microfiche data base for California (\$7.50)
PB84-242-247	Microfiche data base for Colorado (\$8.00)
PB84-242-254	Microfiche data base for Idaho (\$8.00)
PB84-242-262	Microfiche data base for Kansas (\$4.50)
PB84-242-270	Microfiche data base for Montana (\$8.00)
PB84-242-288	Microfiche data base for Nebraska (\$4.50)
PB84-242-296	Microfiche data base for Nevada (\$4.50)
PB84-242-304	Microfiche data base for New Mexico (\$4.50)
PB84-242-312	Microfiche data base for North Dakota (\$4.50)
PB84-242-320	Microfiche data base for Oklahoma (\$4.50)
PB84-242-338	Microfiche data base for Oregon (\$4.75) .
PB84-242-346	Microfiche data base for South Dakota (\$4.50)
PB84-242-353	Microfiche data base for Texas (\$4.50)
PB84-242-361	Microfiche data base for Utah (\$4.50)
PB84-242-379	Microfiche data base for Washington (\$4.50)
PB84-242-387	Microfiche data base for Wyoming (\$5.25)

Figure B.3 continued

In addition to the above studies available through NTIS, the following special study may be ordered from Oregon State University:

Costs Incurred by Permittees in Grazing Livestock on Public Lands in Various Western States (EM 8283), Obermiller, Frederick W., and David K. Lambert, Oregon State University Extension Service, Oregon State University, Corvallis, Oregon (\$3.00)

Figure B.4 Historical Summary of Grazing Fee Events

Year	Events
1897	First regulated use of Forest Reserves.
1906	First Forest Service fees were imposed on ranchers and settlers accustomed to free and unrestricted use.
1920	House Committee on Agriculture tried to get fees increased up to 300 percent (Forest Service opposed this attempt).
1920	Comprehensive Rachford study of 1920-24 was conducted to provide a basis for fair and justifiable fee.
1925	New fees from Rachford study was deferred because of objections from stockmen.
1928	New fees were put into effect to escalate to set levels in 4 years.
1933	Fees were reduced because of economic conditions.
1934	Taylor Grazing Act established control over grazing on the public domain and directed that reasonable fees would be charged.
1941	Saunderson (Forest Service) and Leech (Grazing Service) completed the range appraisal study on commercial grazing lease costs of an animal unit month of feed.
1941 to 1946	Congressional committees were in disagreement over grazing fees; House Subcommittee on Interior Appropriations deemed the fees too low and the Senate Subcommittee on Public Lands and Survey questioned the need to increase fees.
1942	Proposed grazing fee increase deferred because of the war, no increase during the duration.
1946	The Nicholson Report, November 12, 1946, recommended that grazing fees be based on administrative costs.
1952	Independent Agencies Appropriations Act called for user fees to be self-sustaining, uniform, and fair and equitable to the public and user.
1959	Bureau of Budget Circular A-25, called for fair market value.
1966	Western Livestock Grazing Survey to determine grazing costs and values.
1969	New fees system was implemented after review by industry, conservation, and farm groups. First of 10 incremental adjustments applied to reach FMV by 1978.

Figure B.4 continued

Year	Events
1969	Hearings on grazing fees were held by Public Lands Subcommittee of Senate and House Committees on Interior and Insular Affairs
1969	The Secretaries of Agriculture and Interior were defendants in a New Mexico class action suit (Pankey vs. Freeman) and the Secretary of the Interior in Utah (Broadbent vs. Hickel) seeking injunctive relief against the 1969 grazing fee regulations and alleging the Secretaries acted illegally in failing to take capital investment into consideration.
1970	Moratorium on scheduled increases.
1971	Second of 10 incremental adjustments applied.
1972	Fees limited to a 3 percent increase over 1971.
1973	Third of 10 incremental adjustments applied, FMV to be reached by 1980.
1974	Fourth of 10 incremental adjustments applied.
1975	Moratorium on scheduled increase. The President said the schedule will be maintained to reach FMV by 1980.
1976	Scheduled adjustment applied. The Federal Land Policy and Management Act was signed on October 21; Section 401(a) directed that there would be no grazing fee increase in 1977 and also directed the Secretaries of Agriculture and the Interior to conduct a grazing fee study.
1977	Moratorium on scheduled increase. Report of Secretaries on grazing fees submitted to Congress on October 21, 1977.
1978	Public Rangelands Improvement Act (PRIA) of 1978 established a cost of production/ability to pay grazing fee formula for the 7-year period 1979=85. Report to be made to the Congress no later than December 1985.
1985	Report of the Forest Service and BLM on PRIA fee system and other optional fee systems to the Secretaries of Agriculture and the Interior for their 1985 report to Congress.
1986-1992	Executive Order 12548 (2/14/86), indefinitely extended PRIA formula, with \$1.35 minimum, until Congress takes action.
1992	1986 Report of the Forest Service and BLM to Congress updated under direction of Amendment No. 215, 1992 Appropriation Bill for Department of the Interior and Related Agencies (Forest Service)

Figure B.4 continued

Year	Grazing Fee	Basis of Grazing Fee	
<u>Bureau of Land Management</u>			
1935	No fee		
1936=1946	\$0.05	Cost of administration	
1947-1950	\$0.08	Nicholson Report	
1951-1954	\$0.12	Reasonable fee	
1955-1957	\$0.15	Reasonable fee	
1958	\$0.19	100 percent of livestock price formula	
1959-1960	\$0.22	100 percent of livestock price formula	
1961=1962	\$0.19	100 percent of livestock price formula	
1963-1965	\$0.30	150 percent of livestock price formula	
1966-1968	\$0.33	150 percent of livestock price formula	
<u>Forest Service</u> (Average Fee*)			
	<u>Cattle</u>	<u>Sheep</u>	
1906-1916	\$0.06	\$0.02	Reasonable fee
1917-1927	\$0.13	\$0.04	Rental value of private range
1928=1931	\$0.13	\$0.04	Rachford Appraisal
1932-1935	\$0.08	\$0.02	Appraisal adjusted by livestock prices
1936-1944	\$0.17	\$0.04	Appraisal adjusted by livestock prices
1945-1954	\$0.42	\$0.10	Appraisal adjusted by livestock prices
1955-1964	\$0.43	\$0.16	Appraisal adjusted by livestock prices
1965-1968	\$0.52	\$0.11	Appraisal adjusted by livestock prices
Forest Service (FS) and Bureau of Land Management (BLM)			
	<u>FS*</u>	<u>BLM</u>	
1969	\$0.60	\$0.44	1969 Fair Market Value Formula**
Formula**			
1970	\$0.60	\$0.44	Moratorium
1971	\$0.78	\$0.64	
1972	\$0.80	\$0.66	Fee limited to 3% increase
Increase			
1973	\$0.91	\$0.78	
1974	\$1.11	\$1.00	
1975	\$1.11	\$1.00	Moratorium
1976	\$1.60	\$1.51	
1977	\$1.60	\$1.51	Moratorium
1978	\$1.60	\$1.51	PRIA Fee Formula
1979	\$1.93	\$1.89	
1980	\$2.41	\$2.36	
1981		\$2.31	(1st year uniform fee)
1982		\$1.86	
1983		\$1.40	
1984		\$1.37	
1985		\$1.35	
1986		\$1.35	
1987		\$1.35	

Figure B.4 continued

Year	Grazing Fee	Basis of Grazing Fee
1988	\$1.54	
1989	\$1.86	
1990	\$1.81	
1991	\$1.97	
1992	\$1.92	

*Forest Service areas had different base value, number represents the average value charged for the years shown.

**1969 Fee formula was uniform, each agency was to reach the fair market value in 10 years through the addition of ten annual increments (FS = \$0.072, BLM = \$0.09).

Figure B.5 Summary of Vacant Allotment Information, Forest Service and BLM

Office	# Allot	AUM's	Acres	Number of Allotments	
				Cattle	Sheep
Bureau of Land Management					
Arizona	15	9,485	241,992	15	0
California	44	9,182	299,933	35	9
Colorado	25	1,449	25,239	23	2
Idaho	10	5,881	79,201	8	2
Montana	17	1,008	12,435	17	0
Nevada	46	8,397	1,579,134	46	0
New Mexico	41	11,567	112,520	41	0
Oregon	55	5,792	113,059	54	1
Utah	50	21,017	492,500	35	15
<u>Wyoming</u>	<u>24</u>	<u>6,451</u>	<u>75,587</u>	<u>21</u>	<u>3</u>
Total Vacant	327	80,229	3,031,600	295	32
BLM Total	21,814	13,553,835	162,455,441	20,074	1,740
Vacancy Rate	1%	1%	2%	1%	2%
Forest Service					
Arizona	4	11,079	196,320	4	0
California	99	40,965	1,068,410	85	14
Colorado	92	172,305	1,426,025	37	55
Idaho	39	56,295	268,382	8	31
Montana	58	5,132	332,747	46	120
Nevada	10	13,821	43,523	8	2
New Mexico	24	4,574	123,403	21	3
Oregon	55	87,129	1,224,718	32	23
Utah	3	1,952	9,728	0	3
Washington	20	20,222	306,269	13	7
<u>Wyoming</u>	<u>36</u>	<u>21,471</u>	<u>227,595</u>	<u>19</u>	<u>17</u>
Total Vacant	440	434,945	5,227,120	273	167
Total	9,798	9,553,911	99,655,315	7,474	1,613
Vacancy Rate	4%	5%	5%	4%	10%
Vacant BLM/FS	767	515,174	8,258,720	568	199
Total BLM/FS	31,612	23,107,746	262,110,756	27,548	3,353
Vacancy Rate	2%	2%	3%	2%	6%

Figure B-6 Number of Public Land AUM's by State

State	Forest Service		Bureau of Land Management			Total BLM/FS
	FS-AUM's	FS-AM's*	Sec. 15	Sec. 3	BLM-Total	
----- 1989-----						
Arizona	1,484,282	1,236,902	149,762	501,929	651,691	1,888,593
California	579,114	482,595	160,003	233,381	393,384	875,979
Colorado	916,484	763,737	52,255	671,457	723,712	1,487,449
Idaho	698,433	582,028	36,101	1,378,139	1,414,240	1,996,268
Kansas	0	0	124	0	124	124
Montana	659,546	549,622	164,740	1,157,867	1,322,607	1,872,229
Nebraska	101,484	84,570	790	0	790	85,360
Nevada	373,213	311,011	50,431	2,420,831	2,471,262	2,782,273
New Mexico	913,158	760,965	231,697	1,679,429	1,911,126	2,672,091
North Dakota	0	0	9,489	0	9,489	9,489
Oklahoma	8,884	7,403	138	0	138	7,541
Oregon	559,192	465,993	84,134	918,967	1,003,101	1,469,094
South Dakota	119,642	99,702	73,634	0	73,634	173,336
Utah	701,692	584,743	0	1,340,363	1,340,363	1,925,106
Washington	135,468	112,890	26,151	0	26,151	139,041
Wyoming	605,076	504,230	471,794	1,594,059	2,065,853	2,570,083
Total	7,855,668	6,546,390	1,511,243	11,896,422	13,407,665	19,954,056
----- 1990-----						
Arizona	1,595,843	1,329,869	160,380	520,882	681,262	2,011,131
California	572,771	477,309	165,151	214,651	379,802	857,111
Colorado	898,752	748,960	52,270	748,133	800,403	1,549,363
Idaho	715,832	596,527	35,955	1,363,861	1,399,816	1,996,343
Kansas	0	0	124	0	124	124
Montana	652,485	543,738	165,489	1,152,831	1,318,320	1,862,058
Nebraska	96,594	80,495	790	0	790	81,285
Nevada	390,788	325,657	48,714	2,500,216	2,548,930	2,874,587
New Mexico	919,439	766,199	235,490	1,675,331	1,910,821	2,677,020
North Dakota	0	0	9,637	0	9,637	9,637
Oklahoma	2,579	2,149	138	0	138	2,287
Oregon	549,939	458,283	74,489	988,395	1,062,884	1,521,167
South Dakota	119,495	99,579	73,850	0	73,850	173,429
Utah	696,104	580,087	0	1,331,035	1,331,035	1,911,122
Washington	128,329	106,941	26,427	0	26,427	133,368
Wyoming	602,915	502,429	470,723	1,538,873	2,009,873	2,512,025
Total	7,941,865	6,618,222	1,519,627	12,034,208	13,553,835	20,172,056

*Forest Service AUM's are converted to a unit that is similar to BLM AUM's by dividing by 1.2.

Figure B.7 Forest Service Maintenance Expenditures by Permittees, by Region, 1979-1983

Maintenance Expenditures, Total Dollars

Region	1979	1980	1981	1982	1983	1979-1983
1	255,501	231,690	173,725	166,630	173,911	1,001,457
2	348,750	543,650	432,259	521,747	467,683	2,314,089
3	490,501	236,979	176,219	830,432	997,176	2,731,307
4	869,945	620,971	600,877	747,260	750,031	3,589,084
5	257,218	337,472	202,608	245,514	209,439	1,252,251
6	<u>261,378</u>	<u>174,888</u>	<u>254,447</u>	<u>225,095</u>	<u>269,281</u>	<u>1,185,089</u>
Total	7,919,167	7,886,410	7,936,279	7,997,196	8,134,140	39,873,192

Authorized AUM*

Region	1979	1980	1981	1982	1983	1979-1983
1	1,145,118	1,173,446	1,159,773	1,164,015	1,158,521	5,800,872
2	1,846,487	1,797,147	1,804,864	1,809,678	1,825,118	9,083,294
3	2,008,718	1,940,898	1,974,503	2,022,959	2,109,381	10,056,459
4	1,866,207	1,922,390	1,930,210	1,906,524	1,925,946	9,551,277
5	450,178	453,191	441,713	472,718	496,927	2,314,727
6	<u>602,461</u>	<u>599,338</u>	<u>625,216</u>	<u>621,301</u>	<u>618,248</u>	<u>3,066,563</u>
Total	7,919,167	7,886,410	7,936,279	7,997,196	8,134,140	39,873,192

Maintenance Dollars per AUM

Region	1979	1980	1981	1982	1983	1979-1983
1	0.22	0.20	0.15	0.14	0.15	0.17
2	0.19	0.30	0.24	0.29	0.26	0.25
3	0.24	0.12	0.09	0.41	0.47	0.27
4	0.47	0.32	0.31	0.39	0.39	0.39
5	0.57	0.74	0.46	0.52	0.42	0.54
6	0.43	0.29	0.41	0.36	0.44	0.39
Average	0.31	0.27	0.23	0.34	0.35	0.30

Forest Service AUM's converted to AM (similar to BLM's AUM) by dividing by 1.2

Figure B.8 Differences Between Private Leased and Public Grazing Lands

<u>PRIVATE GRAZING AGREEMENTS</u>	<u>PUBLIC RANGELAND PERMITS/LEASES</u>
<u>FORM</u>	
Typically oral "handshake" agreements.	Written leases/permits
<u>TENURE</u>	
Typically 1-year but renewed year after year unless there is a specific cause for nonrenewal. Typical renewal procedure may be as simple as a Christmas card note, accompanied by a check for the following year's lease period.	10 year leases/permits. Renewed upon written application and acceptance of any specific changes in terms and conditions.
<u>TERMS AND CONDITIONS</u>	
Typically no written documentation. General understanding between the parties that property is not to be abused and returned at the end of term of use in at least as good shape as received. If lessee fails to maintain the condition of the property, the agreement will be terminated or not renewed. No established process for handling disagreements other than the civil courts.	Detailed general terms and conditions contained in published regulations plus specific stipulations for the individual leases/permits. May be held for cancellation for specific cause with rights of appeal to higher administrative bodies with the burden of proof on the agency.
<u>PAYMENT SCHEDULES</u>	
The private agreements show a fairly even mix of payments at the beginning of the use period with various combinations of partial advance, periodic, and end of the season payments.	Generally the permits/leases provide for full payment in advance. There are, however, many situations in which split billings and payment at the end of the grazing season are employed.
<u>SEASONS AND PERIODS OF USE</u>	
The parties to the transactions have a general understanding as to when and for how long the lands are to be used for grazing, but actual use periods are more or less dictated by prevailing local weather conditions. These generally allow for a certain amount of flexibility in turn out and roundup dates.	The permits/leases provide fairly strict periods and dates of use, based on history of local weather conditions. They allow only a minimum amount of flexibility in adjusting turn out and roundup dates.

Figure B.8 continued

PRIVATE GRAZING AGREEMENTS

PUBLIC RANGELAND PERMITS/LEASES

NONUSE

In general, lessees in private agreements pay the agreed price whether they graze their livestock or not. Failure to pay would result in the loss of the right to use the property in future years. Someone else would normally use the land for that season and probably for subsequent years as well.

Pertinent agency regulations allow permittees/lessees to take nonuse, whereby he/she retains their grazing privileges and do not have to pay the fees for the specified grazing period. Nonuse is granted for up to 3 consecutive years, and with justification may exceed 3 years.

PENALTIES FOR EXTRA ANIMALS

Typically, lessees are required to Agency regulations provide for pay the agreed price for all animals grazed, but there is normally no penalty such as increased rates for grazing more animals than agreed on.

Agency regulations provide for penalties in the form of increased rates plus possible reductions in use or total loss of privileges for repeated offenses or in extreme circumstances. They would have the right of appeal on any such actions.

REFUNDS FOR FEWER ANIMALS

Normally, lessees in private agreements do not receive refunds in cases where they run fewer animals than planned. There are exceptions, cases of severe drought, fire, and other natural "disaster" situations.

Agency regulations contain provisions which allow for refunds for most situations in which the permittee/lessee runs fewer animals than were covered by billings and payments.

CONSTRUCTION OF IMPROVEMENTS

Routine structural range improvements (for example drift fences) are generally done by the lessee, in some cases with materials provided by the landowner. The landowner bears a substantial part of the cost of major range improvements (i.e., water developments), either directly or through reductions in rent until the construction has been completed. Revegetation is typically handled by the landowner or credited if done by the lessee. In all cases, range improvements of a permanent nature are done with the landowner's consent and with prior agreement that ownership rests with the landowner upon completion.

Improvements on permits/leases can be done in a variety of ways, by the permittee/lessee, with materials being furnished by the agency; by the agency with contract or force account crews; or by the agency with contributed funds from the permittee/lessee and third parties such as wildlife agencies, advisory boards, etc. Permittee/lessee retains interests in these improvements, but in most cases title to improvements rest with the government.

Figure B.9 Summary of Public and Private Costs Per Animal Unit Month for Grazing in the Western States, 1990

Cost Items	-----Cattle-----		-----Sheep-----	
	Public Costs	Private Costs	Public Costs	Private Costs
Lost animals	\$1.73	\$1.07	\$2.02	\$1.88
Association fee	0.23	----	0.12	----
Veterinary	0.32	0.39	0.32	0.32
Moving livestock to and from	0.69	0.72	1.21	1.10
Herding	1.33	0.55	3.84	3.35
Salt and Feed	1.62	2.40	1.59	1.30
Travel to and from	0.93	0.72	1.42	1.24
Water	0.23	0.17	0.43	0.46
Horse	0.46	0.29	0.46	0.20
Fence maintenance	0.69	0.72	0.26	0.43
Water maintenance	0.55	0.43	0.32	0.26
Development depreciation	0.32	0.09	0.26	0.06
Other costs	<u>0.38</u>	<u>0.40</u>	<u>0.84</u>	<u>0.64</u>
Total nonfee costs <u>1/</u>	9.48	7.95	13.09	11.24
Private lease rate <u>2/</u> ----		4.55	----	4.50
Imputed Federal lease rate	3.02	-----	2.65	-----
Total Costs	12.50	12.50	15.74	15.74
Difference between total private/public fee and nonfee costs	\$3.02		\$2.65	
Combined cattle and sheep (weighted average; cattle 80%, sheep 20%)			\$2.95	

1/ The Input Cost Index (ICI) of 289 (1989-91) average, where 1964-68=100, was used to update the nonfee cost items from 1966 to 1990. Individual indices were not available for each cost item; therefore, a single ICI was applied to each nonfee cost item. The ICI best represents the relative change in producer costs and is consistent with procedures used in updating the \$1.23 to the \$2.34 base in the 1986 report. See Prices Paid Index (Ch.3) for explanation of the ICI. No adjustments were made in the relative relationship among nonfee cost items. For example, development depreciation on public permits was held constant at 3.5 times development depreciation on private leases. The relative weighting for cattle and sheep was also held constant.

2/ The Forage Value Index (FVI) for the 11 State PRIA of 254 (1989-91 average, 1964-68=100) was used to update the private lease rates which were determined by the 1966 Western Livestock Grazing Survey (i.e. Cattle: \$1.79 x 2.54 = \$4.55; Sheep: \$1.77 x 2.54 = \$4.50.)

Figure B.10 Percent of Beef Cattle Marketings, Percent of Private Leases Reported by AUM, and Percent of Combined Forest Service-BLM AUM's, 1990.

State	FS/BLM AUM's	Beef Cattle Marketings	Private Leases (AUM)
	percent of total-----		
Arizona	10.0	1.4	0.1
California	4.3	3.4	5.2
Colorado	7.7	8.8	12.4
Idaho	9.9	3.4	3.6
Kansas	0.0	32.0	9.6
Montana	9.2	1.9	11.8
Nebraska	0.4	25.8	17.5
Nevada	14.2	*	0.5
New Mexico	13.2	1.3	1.6
North Dakota	.0	2.0	5.3
Oklahoma	.0	3.0	5.3
Oregon	7.5	1.0	7.5
South Dakota	.9	9.7	7.5
Utah	9.5	1.5	2.5
Washington	0.7	3.9	5.5
Wyoming	12.5	.9	4.0

See Chapter 3, used in Figure 3.8, and used as alternative index weightings (Figure 3.12).

* Marketing data is not available for Nevada

Beef Cattle Marketings - Source: USDA, NASS, Monthly Livestock Prices Received Survey weights (November 1989 - October 1990), as used in Beef Cattle Price Index, scaled to 100 percent. This data differs from NASS published marketings (Meat Animal PDI).

Private Leases - Source: USDA, NASS, July Cattle Survey (area nonoverlap from June Agricultural Survey), expanded counts of reports of grazing rates on an animal unit month, cow-calf month, or head month, scaled to 100 percent. The result is private leases reported by cattle producers using a locality question.

Figure B.11 Construction of the Input Cost Index (ICI)

The modified ICI is based on the distribution of the total cash expenses for the production costs of cow-calf operations of all sizes in the western United States. Data for 1980 through 1983 are published in the ERS Economic Indicators of the Farm Section: Costs of Production. The distribution of expenses for 1984 is a projection. The following table shows the distribution of expenses which are used for weighting and the selected components used to compute the ICI.

Distribution of Cash Expenses for Cost of Production per cow for <u>1/</u> Western cow-calf operations (1980-84)				Prices Paid Index Components used to compute ICI	
Expenses	Percentage of Total			Component	Weight Assigned
	Range		Average		
	Low	High			
Feed	41.9	43.2	42.6	Feed	42.6
Veterinary & Medicine	2.2	2.6	2.5	Farm Services & Cash Rent	2.5
Livestock Hauling	0.9	1.1	1.0	Farm Services & Cash Rent	1.0
Marketing	1.2	1.5	1.4	Farm Services & Cash	1.4
Fuel, Lube & Electricity	6.3	7.2	6.7	Fuels & Energy	6.7
Machinery Repairs	6.4	7.8	7.2	Tractor & S-P Mach	7.2
Hired Labor	8.3	8.8	8.5	Wage Rates	8.5
General Farm Overhead	4.4	5.3	4.8	Building Fencing	4.8
Taxes & Insurance	5.9	7.3	6.3	Taxes	6.3
Interest	17.9	19.9	19.0	Interest-Non Real Estate <u>2/</u>	19.0
Total	---	---	100.0	Total	100.0
Average Total Cash Expense			\$250	----	----

^{1/} Total Cash Expenses based on Cost of Production Budget by Cost per Cow for Cow-Calf Operations, All Herd Sizes, West Region. Published in Economic Indicators of the Farm Sector -- Cost of Production issued by Economic Research Service Data used for 1984 unpublished projections.

^{2/} Interest Rate for non-real estate loans based on data from ERS Economic Indicators of the Farm Sector: Income and Balance Sheet.

February 1985

Figure B.12 Comparison of National Prices Paid for Production Index (PPI), PRIA's Prices Paid Index (PRIA-PPI), Consumer Price Index (CPI), and the Input Cost Index (ICI)

Year	National PPI (1910-14=100)	PRIA- PPI (1964-68=100)	CPI (1967=100)	ICI (1944-68=100)
1964	270	95	93	97
1965	277	97	95	97
1966	289	99	97	100
1967	290	103	100	103
1968	290	107	104	103
1964-1968)	(283.2)	(100)	(97.2)	(100)
1969	302	113	110	107
1970	313	118	116	113
1971	328	124	121	116
1972	351	130	125	116
1973	424	140	133	141
1974	481	168	148	170
1975	528	198	161	180
1976	559	215	171	185
1977	579	230	181	191
1978	628	246	194	194
1979	720	275	215	219
1980	798	319	245	247
1981	855	359	270	280
1982	886	378	288	275
1983	883	387	298	278
1984	900	395	311	286
1985	844	397	322	267
1986	885	388	328	255
1987	854	381	340	248
1988	911	386	354	268
1989	958	402	371	289
1990	989	419	391	288
1991	1003	436	408	289
Increases over base	989/283.2= 349%	419/100= 419%	391/97.2= 402%	288/100= 288%

Source: USDA - National Agricultural Statistics Service

Figure B.13 Number of Acres of State Land Boards, or Education Departments, 1991.

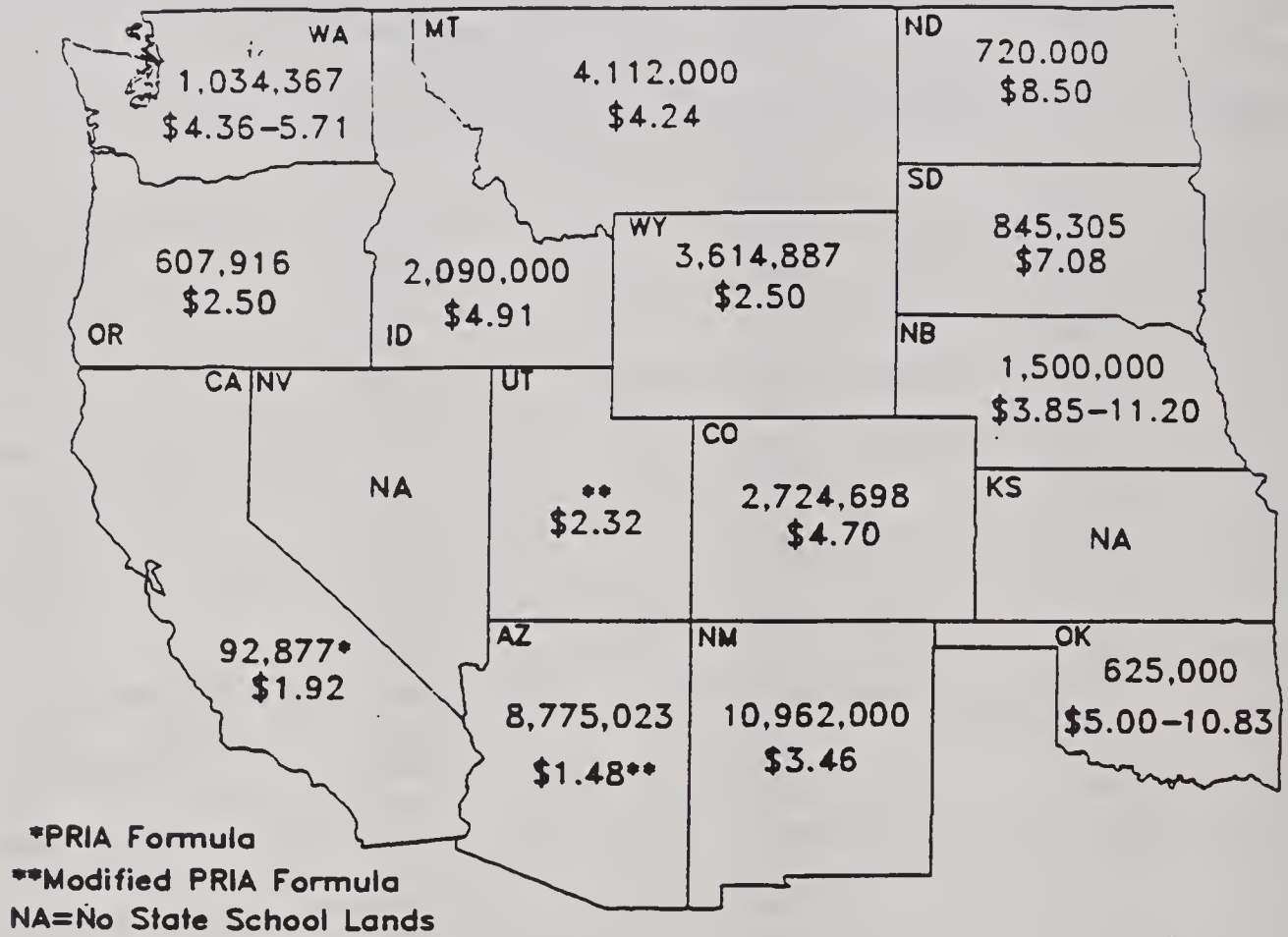


Figure B.14 Grazing Fees Collected by State Land Boards or Education Departments for 1990 - 1991

State	Acres	\$ / AUM		Fee Determination
		1990	1991	
Arizona	8,775,023	\$1.52	\$1.48	Modified PRIA Formula
California	92,877	\$1.97	\$1.92	PRIA Formula*
Colorado	2,724,698	\$4.53	\$4.70	Formula
Idaho	2,090,000	\$5.21	\$4.91	Formula Impending
Montana	4,112,000	\$3.69	\$4.24	Formula
Nebraska	1,500,000	\$3.70-10.90	\$3.85-11.20	Survey/Board Set
New Mexico	10,962,000	\$3.16	\$3.46	Formula
North Dakota	720,000	\$3.50	\$8.50**	USDA Survey
Oklahoma	625,000	***	5.00-10.83	Auction
Oregon	607,916	\$2.50*****	\$2.50*****	Board Set
South Dakota	845,505	\$5.71	\$7.08	Auction
Utah	2,814,726	\$2.37	\$2.32	Modified PRIA*****
Washington	1,034,367	\$4.04-5.39	\$4.36-5.71	Formula
Wyoming	3,614,887	\$2.05	\$2.50	Formula

* Supplemented by Private Lease Rates

** Fair Market Value through competitive bid, with minimum bid formulated from the Agricultural Land Value Survey by 8 pricing regions. The \$8.50 is the State wide pasture rent per acre.

*** Not Available

**** Minimum, if no improvements, ranges up to \$11.50/AUM

***** PRIA range plus \$0.35 (forage quality) + \$0.05 (noxious weeds)/AUM

IN THE TIME AVAILABLE, DATA COULD NOT BE UPDATED.

Figure B.15 Summary of Statistics for State Wildlife Agencies and Other Federal Agencies, 1981

State	Acres	\$/AUM	Fee Determination Method
<u>Wildlife Agencies</u>			
Colorado	50,000	\$8.00	Bids
Idaho	4,800	\$8.50	Bids
Kansas	8,092	\$10.21	Bids
Montana	n.a.	\$11.00	Bids
Nebraska	1,003	\$6.45	Negotiated
Nevada	91,045	\$4.00	Bids
New Mexico	60,000	\$5.00	Bids
North Dakota	13,450	\$7.00	Private Rates
Oregon	79,921	\$5.84	Private Rates
Utah	140,174	\$5.44	Bids, Formula
Washington	163,715	\$4.25	Varies
Wyoming	54,347	\$11.00	Bids
<u>Other Federal Agencies</u>			
	<u>Acres</u>		<u>Fee Determination Method</u>
Agricultural Research Service	165,735		Varies
Air Force	87,102		Bids
Corps of Engineers	421,241		Bids
Army	155,492		Bids
Navy-Marines	85,818		Bids
Bureau of Indian Affairs	7,900,841		Bids + Private Rates
Bureau of Reclamation	230,556		Varies
Fish and Wildlife Service	1,987,569		Private Rates
National Park Service	1,606,651		PRIA
Coast Guard	225		Private Rates

Figure B.16 NOT APPLICABLE TO THE UPDATE

Figure B.17 Bureau of Land Management Administrative Units in Relationship to Pricing Areas

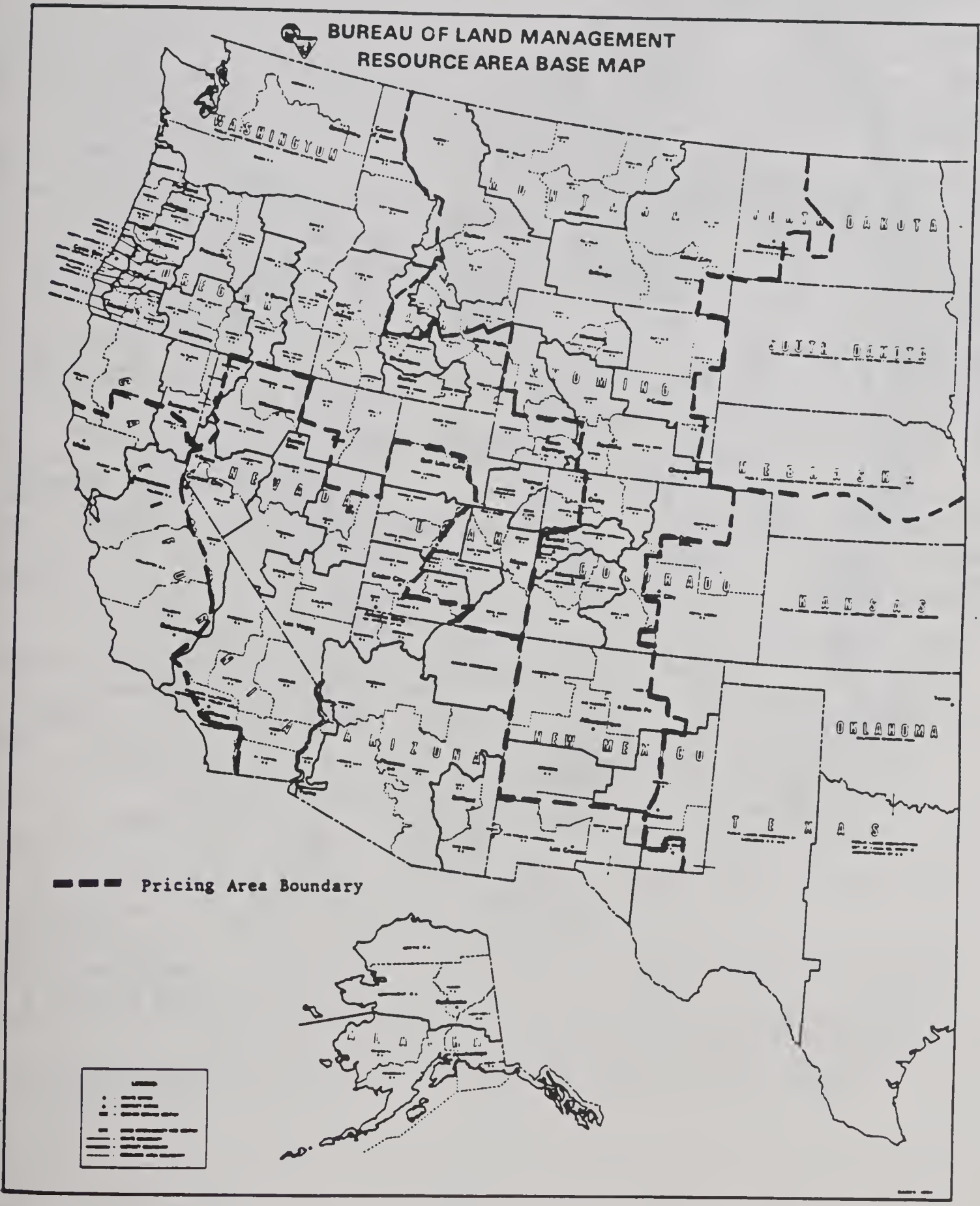


Figure B.18 Forest Service Administrative Units in Relationship to Pricing Areas



GLOSSARY

- Allotment - An area designated for the use of a prescribed number and kind of livestock. May be all Federal ownership or any combination of Federal and private lands. May consist of several or only one pasture.
- Animal Month (AM) - For grazing fee purposes, an AM is a month's use and occupancy of range by one weaned or adult cow, bull, steer, heifer, horse, burro, or mule, or five sheep or five goats.
- Animal Unit Month (AUM) - Forage required to sustain one animal unit (AU) for 1 month. An AU is considered to be one mature cow or equivalent.
- Grazing Lease/Permit - A document authorizing use of the public lands for the purpose of grazing livestock.
- Grazing Year/Fee Year - March 1 to February 28
- National Grasslands - Lands administered by the Forest Service but are excluded from the definition of rangelands in the Public Rangelands Improvement Act of 1978. For that reason, they are excluded from the definition of rangelands in this report.
- Nonuse - An authorization to refrain from grazing livestock without loss of preference for further consideration.
- Public Rangelands - As used in this report, are defined by the Public Rangelands Improvement Act as those lands ". . . administered by the Secretary of the Interior through the Bureau of Land Management or the Secretary of Agriculture through the Forest Service in the 16 contiguous Western States on which there is domestic livestock grazing or which the Secretary concerned determines may be suitable for domestic livestock grazing." The 16 Western States are Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming.
- Range Betterment Funds - Portion of grazing fees paid that is prescribed to be used for range improvements.
- Range Improvement - Any activity or program on or relating to rangelands which is designed to improve production of forage, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, and provide habitat for livestock and wildlife. The term includes, but is not limited to, structure, treatment projects, and use of mechanical means to accomplish the desired result.

Take-ins - Private lands lease arrangements where lessor also provides day to day care of livestock

Term Permit - A document authorizing grazing for a stated number of years (usually 10) as contrasted to an annual or temporary permit.
Westwide - As used in the report refers to the 16 Western States inclusive.

Yearlings - Weaned cattle (both sexes) over 6 and under 18 months of age.

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UPDATE APPRAISAL REPORT
OF
THE APPRAISAL REPORT
ESTIMATING FAIR MARKET RENTAL VALUE
OF GRAZING ON PUBLIC LANDS
AS OF
OCTOBER 1, 1983

DATE OF VALUE
January 1, 1992

DATE OF REPORT
March 27, 1992

PREPARED BY

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March 28, 1992

Mr. Paul B. Tittman, ARA
Chief Appraiser, USDA - Forest Service
4th Floor South
Auditor's Building
201 14th Street SW
Washington, DC 20250.

Dear Mr. Tittman:

This appraisal project is an update of the report prepared by Paul B. Tittman and Clifton E. Brownell, dated July 27, 1984 with Date of Value as of October 1, 1983. Much of the material in that report continues to be pertinent to this current appraisal.

This report describes the methods and analysis used in arriving at our updated opinion.

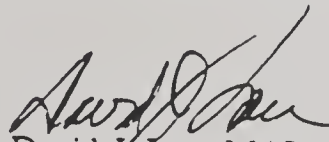
Mr. Charles A. Orman, independent appraiser, Corvallis, Oregon and Mr. Alan A. Axton, Associate Appraiser, Robert J. Mitchell and Associates, Greeley, Colorado assisted in the gathering of data and preparation of this report.

A single westwide grazing rate was not estimated because of the economic and physical variation found between the pricing areas. Further, no new or updated data was collected on grazing rates for sheep.

This updated appraisal is especially contingent upon the Assumptions and Limiting Conditions included as Exhibit A in the Addenda to this report.

As a result of all of these considerations, the January 1, 1992 rental values for grazing on public rangelands are as shown on Page 1 of this report.

Respectfully submitted,


David J. Lau, MAI



Robert J. Mitchell, MAI

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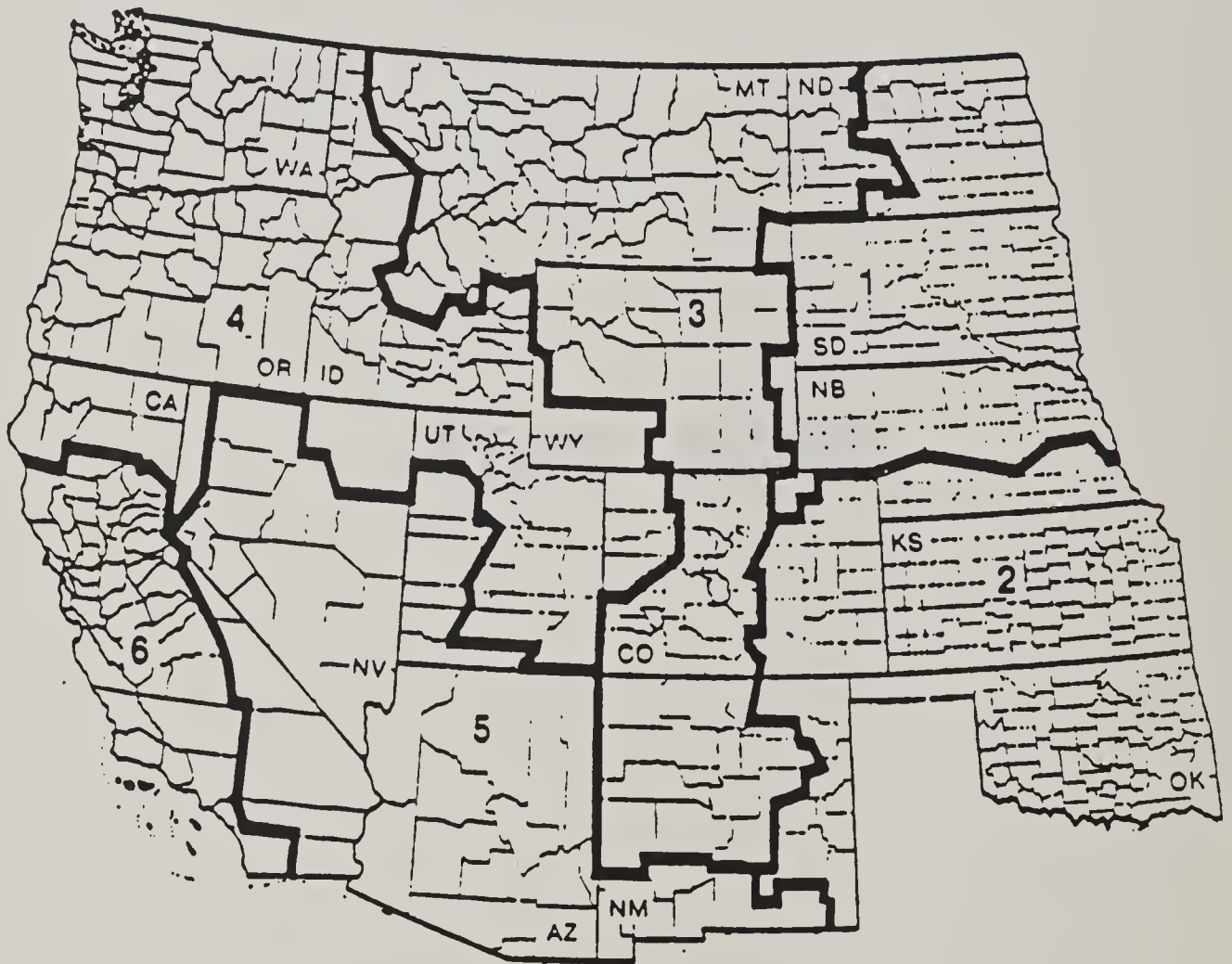
Addenda

Statement of Assumptions and Limiting Conditions

Exhibit

A

BASIC DATA



AREA MAP

SUMMARY OF SALIENT FACTS AND CONCLUSIONS

Purpose of the Appraisal: To update the October 1, 1983 "Fair Market Rental Value of Grazing on Public Rangelands" appraisal to January 1, 1992.

Subject Property: The authorized grazing use on approximately 318,000,000 acres of public rangelands under the jurisdiction of the USDA - Forest Service (FS) and the USDI - Bureau of Land Management (BLM), located in the 17 western states.

Estate Appraised: The rights of permittees and lessees to use specific areas of the public rangelands for livestock grazing.

Units of Value: HDMO (Head Month): A pricing unit based on the price paid to graze one animal for one month.

PRMO (Pair Month): A pricing unit based on the price paid to graze one mother animal with unweaned offspring one month.

Date of Value: January 1, 1992

Price Area	1/01/92 Fair Market Value of Grazing on Public Rangelands * per HDMO-PRMO	
	Mature Cattle & Horses (Over 18 months of age)	Yearling Cattle (Under 18 months of age)
1	\$10.26	\$ 7.74
2	\$ 6.39	\$ 5.76
3	\$ 7.74	\$ 6.03
4	\$ 6.39	\$ 5.85
5	\$ 4.68	\$ 4.68
6	\$ 6.85	\$ 4.77

* Advance payment.

PURPOSE OF THE APPRAISAL

The purpose of the assignment is to update the October 1, 1983 Fair Market Value of Grazing on Public Rangelands¹ appraisal report to January 1, 1992.

SCOPE

During the three month period, January 1, 1992 to April 1, 1992, the appraisers and their staff conducted the updated appraisal.

David J. Lau and Robert J. Mitchell, independent reviewers of the October 1983 appraisal, retained portions of the appraisal data base. During the update, they and their staff personally re-verified lease rates for the years of 1983 and 1991 on 260 grazing leases involving private lands and covering 3,554,009 acres, as well as 56 leases encompassing only governmental lands covering 3,416,572 acres, which were part of the 1983 data base. These numbers could be expanded by over 100 transactions because both governmental and corporate lessor data entered as one observation in the tables which follow, even though these may be numerous lessees - usually at the same rental rate. The current information was also verified.

In addition, 104 individuals who were interviewed gave their opinion of the current native pasture price in their area. Finally, state and federal agency personnel, independent appraisers and investors were interviewed. Opinions expressed were considered by the appraisers in analyzing the data available.

¹ Throughout this updating report the previous report will be referred to as "the October 1983 report".

The lease payments were converted to a price per HDMO or PRMO for each year and grouped by price area. The lease analysis provided an indication of the change in grazing price between 1983 and 1991.

DEFINITION OF VALUE

Fair Market Rental Value as used in this appraisal is defined as, "The amount in cash, or in terms reasonably equivalent to cash, for which in all probability the grazing use would be rented or leased by a knowledgeable owner willing but not obligated to rent or lease to a knowledgeable renter or lessee who desired but is not obligated to lease." It can also be defined as, "The amount that livestock owners would probably pay for the grazing use on typical public rangeland allotments or permits if it were offered for rent or lease in the open market."

ESTATE APPRAISED

This appraisal considers the grazing use associated with the right of permittees and lessees to use specific areas of the public rangelands for livestock grazing. The BLM and the FS grant this right of use, subject to the terms and conditions established by applicable laws and regulations, and the terms and conditions set forth in the permits and leases. These terms and conditions are described in detail in the October 1983 appraisal, on Pages 23 through 28.

AREA DATA

General

This appraisal considers the authorized grazing use on more than 318 million acres of public rangelands that are located within 45 counties of the following western states (see facing page.)

Arizona	Nebraska	South Dakota
California	Nevada	Texas
Colorado	New Mexico	Utah
Idaho	North Dakota	Washington
Kansas	Oklahoma	Wyoming
Montana	Oregon	

The topography of the overall area ranges from the nearly level or gently rolling lands of the Great Plains to the steep and rugged regions of the Rocky Mountains. Elevations range from sea level along the California coast to over 14,000 feet along the Continental Divide in Colorado.

The climates of the area range from the temperate in the Northern Great Plains, Upper Missouri River Valley, and intermountain regions to warm in the southwestern desert regions. Precipitation over the area ranges from considerably less than six inches in southern Nevada and the Mojave Desert in California to in excess of 180 inches in certain areas of Oregon and Washington.

The economy of the area in the western states where the public rangelands are located is economically diverse and draws basic economic support from agriculture, forestry,

mining, tourism, and energy production. The agricultural economy of the area, which has the most direct impact on grazing activity, experienced a prolonged recession during most of the decade of the 1980s. Farmland prices, which peaked in the early 1980s, declined from their peak through 1987.

The following table presents a tabulation of the average per acre value of farmland and buildings, by region, 1984 - 1991:

	As of April		As of February				As of January	
	1984	1985	1986	1987	1988	1989	1990	1991
Northern Plains	518	412	360	331	368	398	425	439
Southern Plains	632	675	579	532	531	516	495	482
Mountain	327	300	267	257	257	260	267	287
Pacific	1,399	1,293	1,201	1,087	1,089	1,129	1,163	1,210
17 State Average	719	670	602	551	561	575	587	605

Note: Nominal dollars. values for 1989 and 1990 revised following 1991 adoption of new procedures.
Sources USDA-ERS.

Between 1984 and 1987 farm real estate in the region declined about 23 percent. Since 1987 prices have recovered, increasing about 10 percent. Although significant changes occurred in real estate prices, causing significant financial restructuring throughout the region, research indicated that there is no direct linkage or relationship between real estate prices and grazing rates.

The area includes both sparsely and densely populated regions. Several of the states within the area have one or more counties that have population densities of only one person or less per square mile. These states are Colorado, Idaho, Montana, Nebraska, New Mexico, North Dakota, South Dakota, Utah, and Wyoming. Counties that have densities

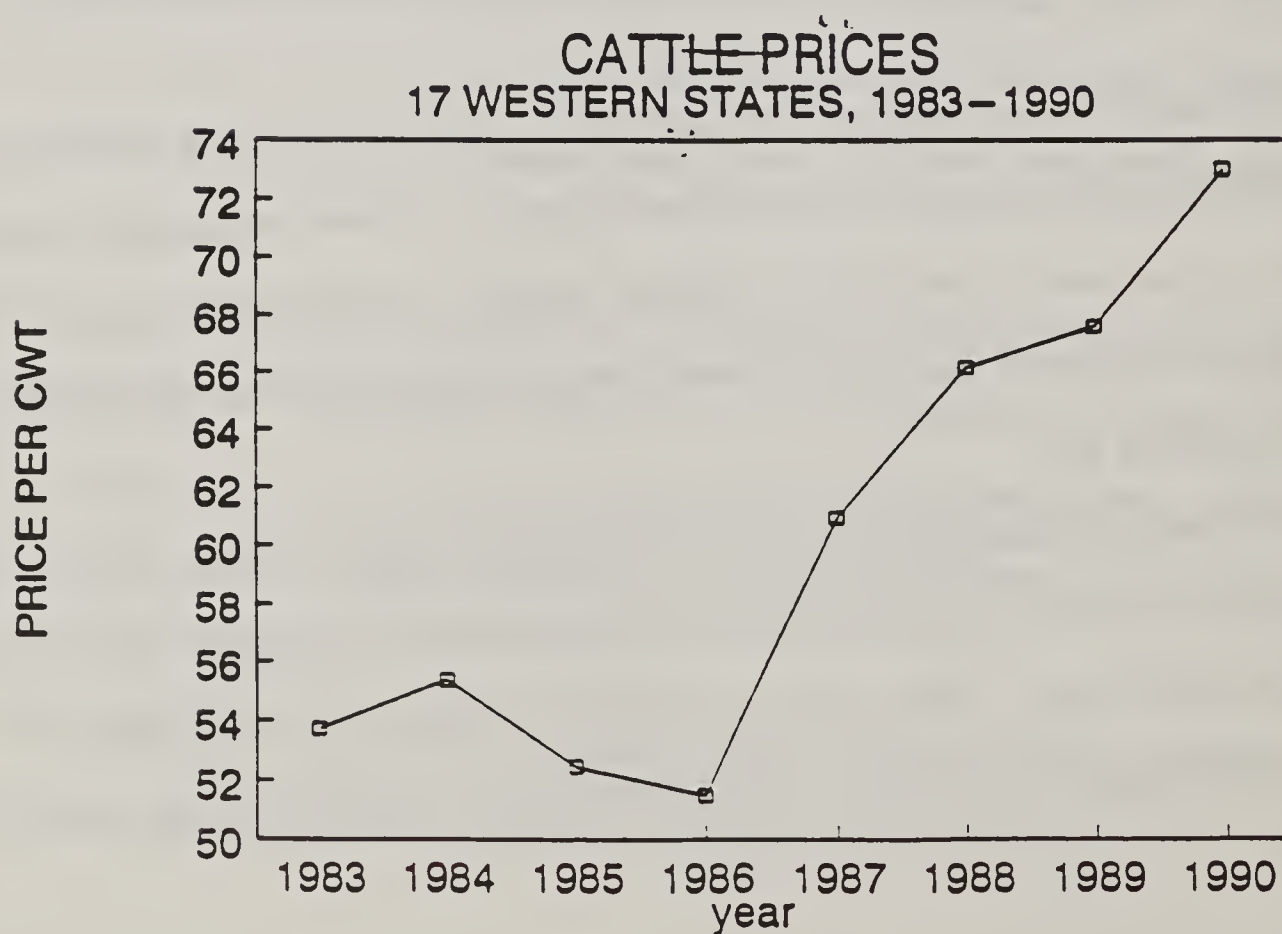
of 250 or more persons per square mile are Boulder in Colorado, Weber in Utah, and Bernalillo in New Mexico.

The livestock industry experienced low beef cattle prices between 1983 and 1986 after which prices began a recovery.

The following graph presents the cattle price trend between 1983 and 1990:

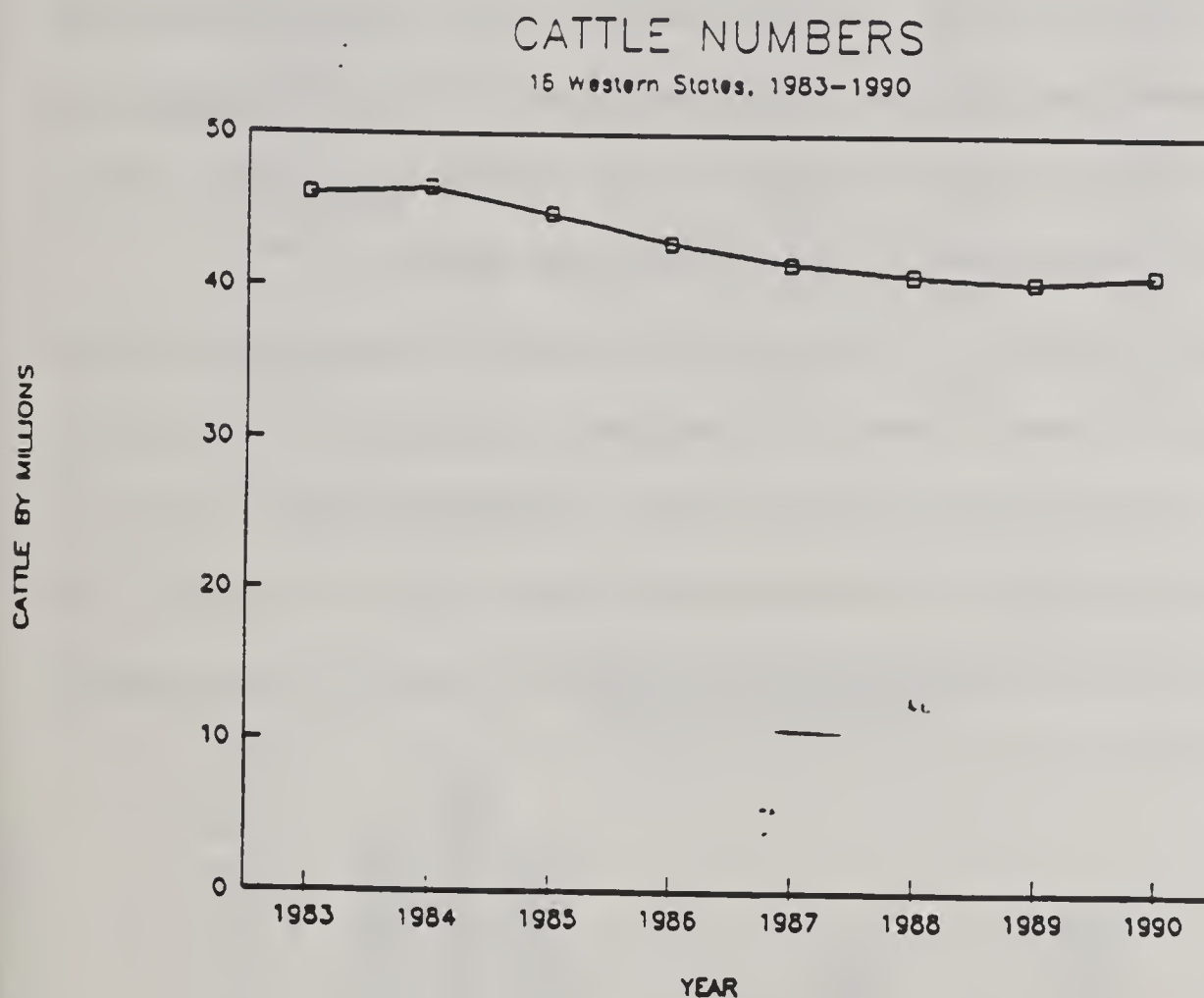
*Cattle Prices for 17 Western States
1983-1990*

<u>Year</u>	<u>Price*</u>	<u>% Change</u>
1983	\$53.72	N/A
1984	\$55.38	3%
1985	\$52.45	-5%
1986	\$51.47	-2%
1987	\$60.95	18%
1988	\$66.16	9%
1989	\$67.61	2%
1990	\$72.99	8%



*SOURCE: National Agricultural Statistics Service

Cattle numbers in the 16 western states were reduced from 46,440,000 as of January 1, 1984 to a low of 40,680,000 as of January 1, 1989, a decline of 12.4 percent. The following graph illustrates the cattle population trend in the west:



Cattle numbers and beef prices have a direct effect on grazing rates. Some government agencies determine grazing rates as a multiple of beef cattle prices. Lessors and lessees frequently cited increases in beef prices as the primary reason grazing rates had increased. Changes in cattle numbers obviously impact demand and therefore indirectly affect grazing rates and potential vacancy.

As indicated in the tables and graphs on the following pages, grazing rates in the western states increased between 1983 and 1991.

State Land Board grazing rates reported are generally administratively set and therefore do not represent market conditions. Nebraska, North Dakota, and Kansas are not included in the tabulation because their grazing rates are market driven and have been included in the governmental lease data. Nevertheless, between 1983 and 1991, grazing rates in the 13 western states increased an average of \$1.11 per AUM compared with a westwide average of \$0.86 for private grazing leases as verified in this appraisal.

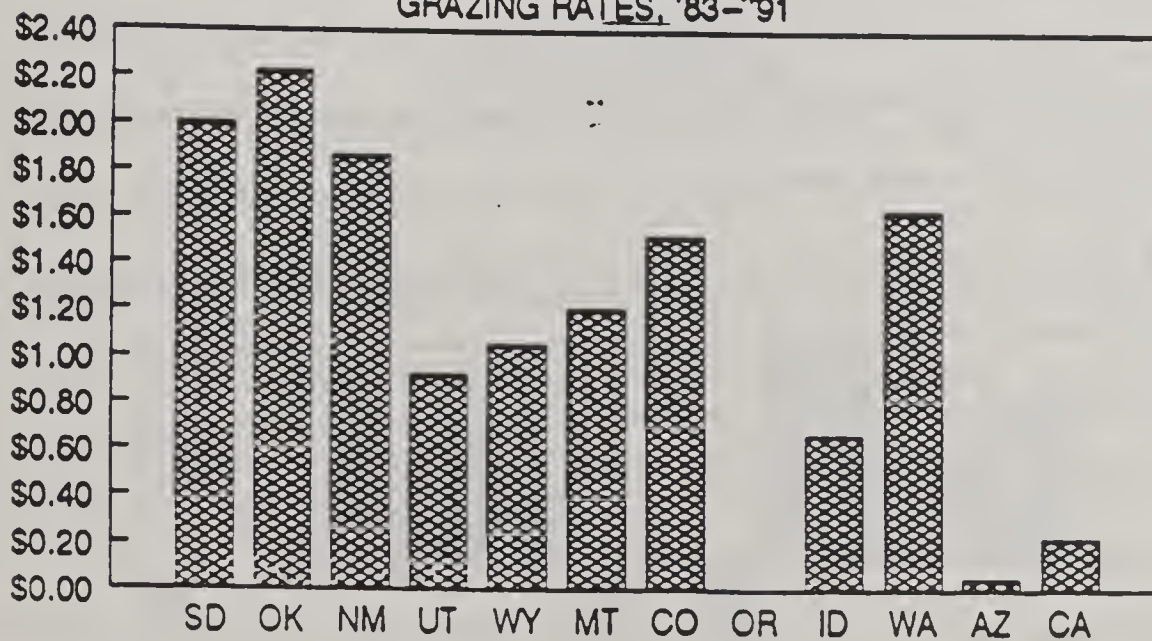
The cow-calf grazing rate per month on privately owned non-irrigated land reported by USDA-NASS for 13 western states (no data available for Arizona and Nevada) shows that the average rate increased \$0.81 from 1983 to 1991. Differences within the region are reflected by a decline of \$2.08 in New Mexico to an increase of \$2.90 in Oklahoma. The price changes reported by NASS generally correlate with the results of the private grazing lease re-verification.

STATE LAND BOARDS
13 WESTERN STATES, 1983-1991

	<u>Area</u>	<u>1983</u>	<u>1991</u>	<u>Change</u>
South Dakota	1	\$4.13	\$6.13	\$2.00
Oklahoma	2	\$5.70	\$7.92	\$2.22
New Mexico	3	\$1.60	\$3.46	\$1.86
Utah	3	\$1.40	\$2.32	\$0.92
Wyoming	3	\$1.45	\$2.50	\$1.05
Montana	3	\$2.97	\$4.17	\$1.20
Colorado	3	\$3.00	\$4.52	\$1.52
Oregon(1)	4	\$2.50	\$2.50	\$0.00
Idaho	4	\$4.25	\$4.91	\$0.66
Washington	4	\$3.37	\$5.00	\$1.63
Arizona	5	\$1.43	\$1.48	\$0.05
California	6	\$1.70	\$1.92	\$0.22
Average:		\$2.79	\$3.90	\$1.11

(1) Minimum rate only.

STATE LAND BOARDS
GRAZING RATES, '83-'91



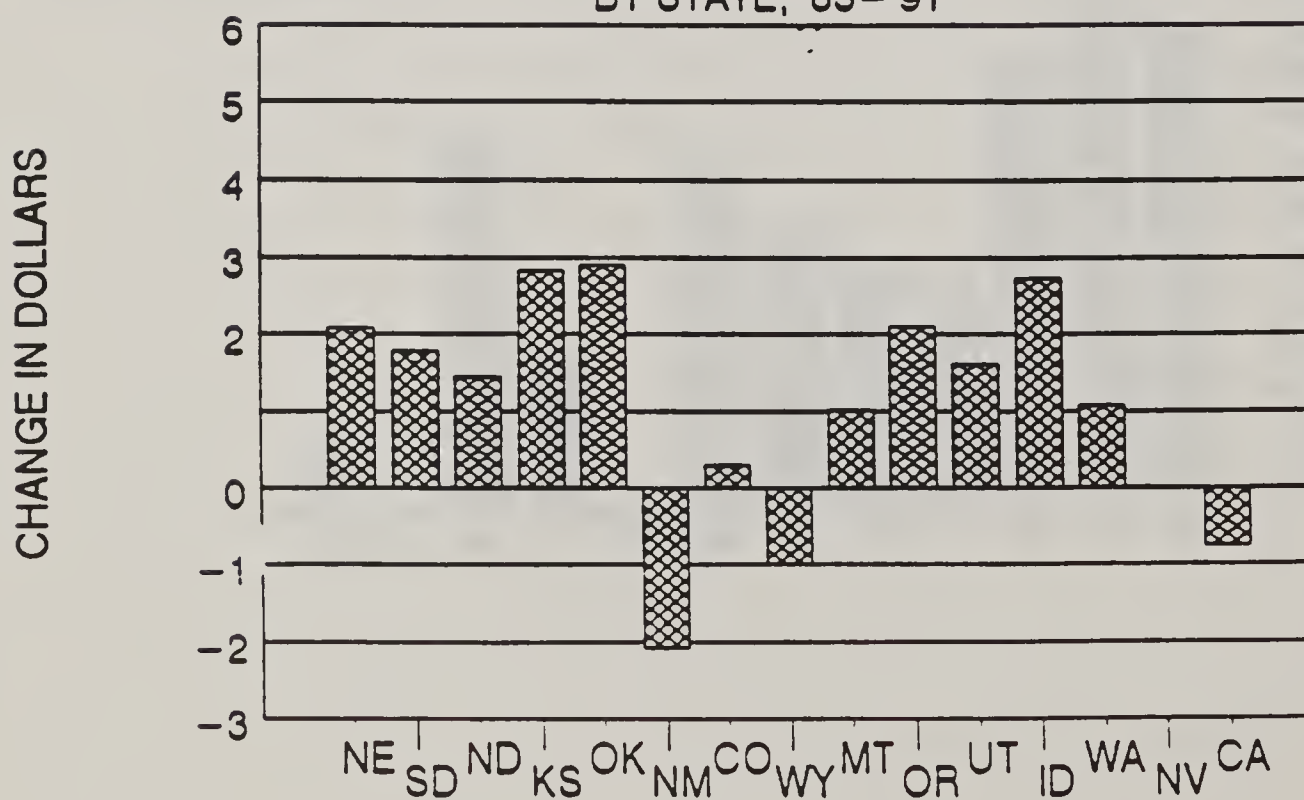
NASS GRAZING DATA

AREA	STATE	1983	1991	CHANGE
1	NE	\$15.88	\$17.96	\$2.08
1	SD	\$13.56	\$15.34	\$1.78
1	ND	\$9.25	\$10.70	\$1.45
2	KS	\$10.92	\$13.76	\$2.84
2	OK	\$5.78	\$8.68 (2)	\$2.90
3	NM	\$10.08	\$8.00 (2)	(\$2.08)
3	CO	\$10.59	\$10.90	\$0.31
3	WY	\$12.12	\$11.12	(\$1.00)
3	MT	\$11.12	\$12.13	\$1.01
4	OR	\$8.58	\$10.69	\$2.11
4	UT	\$9.37	\$10.99	\$1.62
4	ID	\$8.85	\$11.59	\$2.74
4	WA	\$8.18	\$9.26	\$1.08
5	NV			
6	CA	\$12.37	\$11.63	(\$0.74)
AVE:(1)		\$11.44	\$12.25	\$0.81

(1) Based on NASS calculated averages for 16 western states

(2) Estimates only

NASS DATA BY STATE, '83-'91



Long term weather patterns have an effect on grazing on native range. During most of the 1980s southern and central California has experienced drought conditions. Range conditions have been abnormally dry throughout Nevada, Utah and southeast Idaho for the past six years. Drought has also affected the northern plains states (Montana, North Dakota and South Dakota) particularly from 1988 through 1991.

These long term weather conditions impact cattle numbers and grazing rates. In some instances, operators simply reduce herd size while in other situations, an operator may truck cattle to more distant and less affected grazing areas. In most cases, drought conditions trend to lower grazing rate prices, however, in some situations, the lower supply of native forage causes grazing rates to increase.

In summary, recent increases in beef cattle prices have had a positive affect on grazing rates. Most producers who were interviewed expressed confidence that beef cattle prices will remain stable in response to the national and region wide reduction in cattle numbers. Drought conditions continue to impact areas in the region, particularly the northern plains states of North and South Dakota and Montana, as well as Utah and Southern Idaho.

The western sheep industry continues to decline. Industry leaders cite a number of reasons, such as predator problems and banning of certain control methods, imports of both wool and meat, inability to hire herders at a price they can afford, and others. The numbers of sheep being run on western rangelands is decreasing. The FS, for example, has a significant number of high mountain sheep allotments in forests in the Rocky Mountains that are going unused. These have been abandoned or relinquished by operators who report that they have done so because of costs and a mounting number of problems in operating on

these allotments. Where feasible, other areas are being converted from sheep to cattle use. No sheep leases or allotments were investigated in this update appraisal and no opinion of change in value has been expressed.

PROPERTY DATA

The 318 million acres of public rangelands within the 17 western states are administratively divided into three different categories: (1) public lands, administered by the BLM; (2) National Forest lands, and (3) National Grasslands, administered by the FS. See Subject Land Data section in the October 1983 report.

The public rangelands are divided into more than 30,000 tracts or allotments. These tracts or allotments range from less than 40 acres to more than 1 million acres and are scattered, intermingled, solid block, and a mix of scattered tracts and solid blocks.

The tracts within the scattered pattern of ownership are primarily the remnants of the original public domain lands (BLM) that were left after the majority of the public lands in the area were patented under a variety of settlement laws. The intermingled pattern of ownership describes those areas in which the public rangelands (mostly public lands administered by BLM) are intermingled with lands owned by railroads, timber companies, or private individuals.

In terms of total acreage, the majority of the public rangelands, i.e. BLM and FS, are in the solid block pattern of ownership. Even in these solid blocks, there often are small scattered tracts under private ownership that were patented as homesteads or mining claims.

Also, within the solid blocks of lands administered by BLM, there are fairly regular patterns of state ownership resulting from laws granting statehood.

Because of the ownership patterns of public rangelands, the status of legal and physical access to individual allotments or tracts varies greatly. Within the scattered pattern of ownership, many tracts or allotments are surrounded by lands under other ownership and there is no existing legal access. Other tracts are bordered by, or crossed by, public roads of different types and quality. Physical access may be limited to horse or 4-wheel drive trails.

Historically, permittee/user access to the public rangelands has not been a significant issue. The primary reason probably is that, for the most part, the permittees/users are also the owners or the authorized users of the lands which adjoin or surround the public rangelands.

Because of their vast size and expanse, the public rangelands exhibit examples of literally all of the recognized land forms. The elevations on these lands range from below sea level to as much as 12,000 feet. The surfaces of the tracts or allotments vary from level to rolling to hilly to steep to mountainous and precipitous, and show combinations of any of these types. The National Grasslands are generally more moderate or gentle in their surfaces.

The public rangelands support all of the natural vegetation types known to the West plus many of the domesticated types introduced during the past 40 to 50 years. Forage quality on these lands as indicated by the estimates of carrying capacities, varies substantially from area to area and tract to tract. The estimates of carrying capacity range from as good as less than 1 acre per animal unit month (AUM) to as poor as more than 99 acres per AUM.

The availability and distribution of livestock water in individual areas are extremely variable. Many of the smaller tracts in the areas of scattered ownership have no on-site source of water. The livestock must walk to a source on the adjoining or surrounding lands for water. On some, water has been piped to the tract. Others have a good, reliable on-site source of water, either natural or developed.

Over the years, a wide variety of improvements have been added to public rangelands, such as roads, cattle guards, fences, corrals, dams, tanks and troughs. In many cases, all or part of the cost of the improvements have been paid by the permittees.

HIGHEST AND BEST USE

In appraisal terminology, the highest and best use of a property is described as "that reasonable and probable use that will support the highest present value, as defined, as of the effective date of the appraisal."

This appraisal is of the "market value of the right to graze livestock...", or of a unit of rental. This is only a partial interest in the land. It may or may not be the highest and best use of the land.

VALUATION

APPROACHES TO VALUE

The October 1983 report explains that the Cost and Income Approaches to value are of no benefit to the process of valuing the subject grazing privileges. A lease comparison approach is appropriate and is a process of comparing similar leases - or privileges and interests, with those granted by the BLM and FS.

This updated appraisal relies solely on the Lease Comparison Approach, which is applied in a Mass Appraisal Technique.

COMPARABLE LEASE DATA

October 1983 Appraisal

The data base of the October 1983 appraisal included 11,039 negotiated leases and 36,283 administrative leases, none of which included significant landlord services. The leases were sorted into 10 groups or sub-files representing categories of lease transactions.

<u>Sub-file</u>	<u>Description</u>
A	Not intended to be market price
B	Defy comparative analysis
C	Price is administratively set
D	Price expressed in lump sum
E	Take in or serviced leases
F	Deny public access
G	More than 10% crop aftermath or meadow
H	Water not present within leased area
I	Corporate, railroad, or state ownership
J	Less than 10% crop aftermath or meadow

Each sub-file was also sorted by animal type and then the sub-files containing mature cattle and horses were analyzed. It was found that with the exception of Sub-files A, B, C and E, the range of indicated prices were well within the range of prices reflected by the

best price indicators in Sub-file J. Based on this analysis, Sub-files D and F through J were combined as the primary data base upon which the estimates of value were based.

The transaction data was then studied relative to location, giving consideration to seasons of use, topography, climatic characteristics and so forth. The analysis suggested lease rates as a basis for drawing pricing boundaries.

The consolidated data base was then segregated based on the payment schedule with those groupings calling for payment in advance being compared to leases with other payment terms. This analysis resulted in a 10 percent discount indicated for advance payment and a 10 percent surcharge for payments at the end of the season.

The processing and analysis of this transaction data showed that no adjustments were necessary for value influencing factors such as location, size, water distribution, or animal type - within each pricing area.

Updated Data

The updated lease information is comparable to the grazing privileges offered by BLM/FS to a similar degree as the data utilized for the 1983 appraisal. The current data is less extensive but considered adequate and appropriate for the task of measuring the amount and direction of change since the previous report.

Many of the comparables encompass some BLM/FS lands, others adjoin these federal ownerships, while still others are completely separate but of similar quality regarding all or most of the pertinent value factors. As noted elsewhere in both appraisal reports, many items of perceived non-comparability have been tested by the market data and, except for location (pricing area) and "conditions of use", were found to be so insignificant as to require no adjustment.

Comparison of Private Leases to Public Permits

In the October 1983 appraisal the private land lease rate was compared to lease rates of other federal lands and lease rates on public rangelands. This comparison showed that federal ownership appears to lease for an amount slightly less than that of nonfederal properties. As a result, the fair market value of grazing on public lands reflects a five percent downward adjustment of the private land lease rate. This adjustment is entitled, "Conditions of Use", and reflects the impact of the administrative requirements associated with federal permits.

Westwide, the 1991 private and federal lease data collected reflects an average private land lease rate of \$10.12 per HDMO-PRMO and a federal lease rate of \$9.65 per HDMO-PRMO. This 4.64 percent difference conforms with the conclusions drawn from the more voluminous data analyzed in the October 1983 appraisal. Therefore, the five percent adjustment for "Conditions of Use" continues to be valid and has again been applied to the current estimate of the private land lease rate. —

MARKET INVESTIGATION

In this appraisal update, the appraisers interviewed many of the lessors or lessees who provided private lease data used in the October 1983 appraisal. Additional data was obtained on leases of government lands from agencies such as the Bureau of Indian Affairs, Fish and Wildlife Service, Army Corp of Engineers, and so forth. Where possible, current as well as 1983 lease data was obtained from these new sources.

The summary of the new data is presented in tables within the Valuation section of this report and is separated by pricing areas. In addition to the information in the tables, the confirmation interviews - when possible, included discussions of fencing, livestock water, responsibilities of services, comparability, carrying capacity, and so forth - actually many or most of the significant items included in the Data Collection Form used for the October 1983 appraisal. See Exhibit 10, Volume II of the October 1983 report.

In addition, data and opinions concerning lease rates were solicited from appraisers, government agency employees, as well as ranchers and other knowledgeable sources. Economic data compiled by USDA-NASS pertaining to cattle grazing rates on privately owned non-irrigated land, beef cattle prices and inventories, as well as farm real estate values were also obtained. This data was used by the appraisers to supplement the private and government lease data in arriving at their final opinion of value for the six pricing areas.

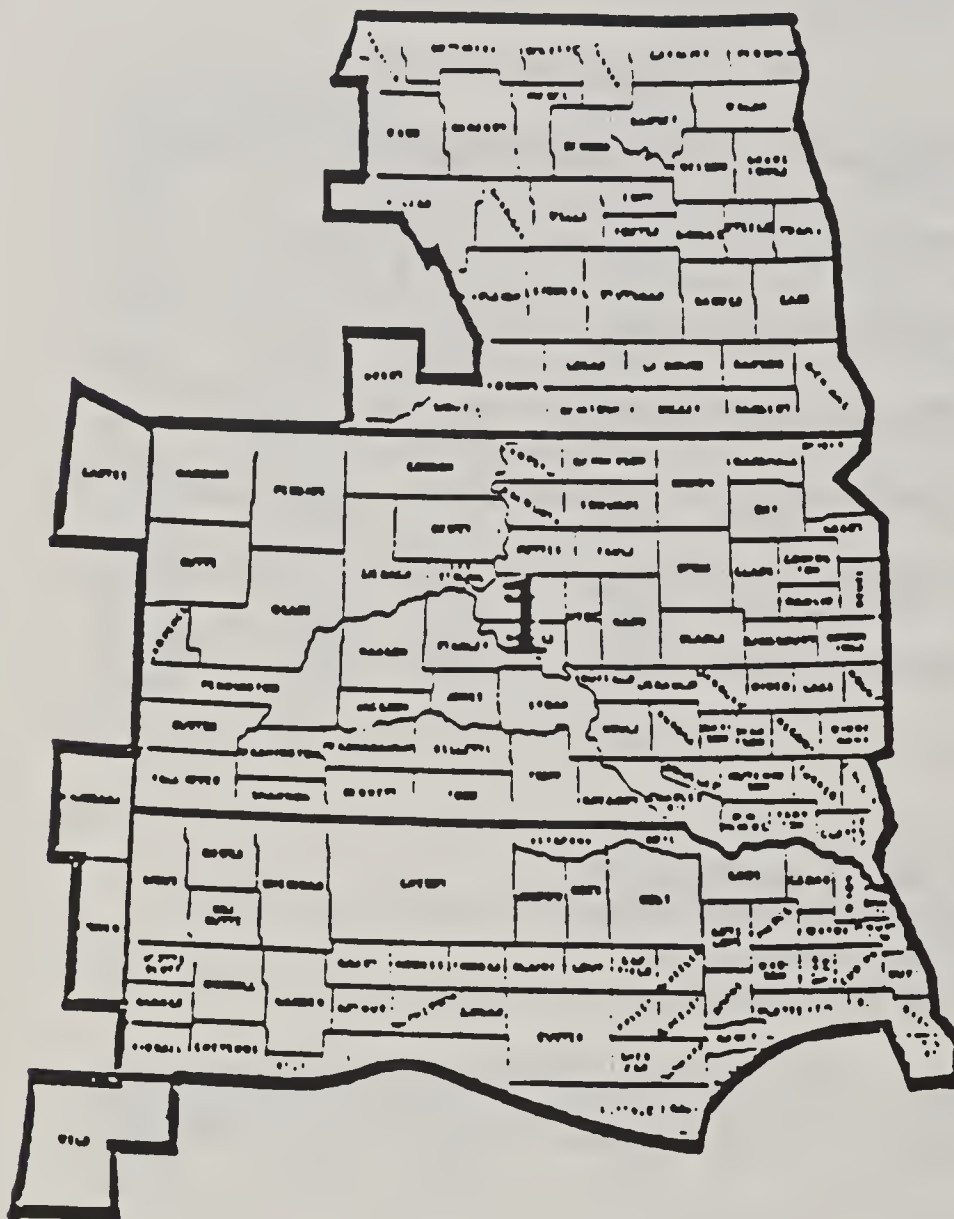
The tables presented on the following page summarize the private and governmental leases which were verified in this appraisal.

PRIVATE LEASE RATES
FEDERAL GRAZING STUDY UPDATE
 Lau, Mitchell & Assoc., 3/92
West Wide Totals

AREA	NO. LEASES	NO. ACRES	NO. ANIMALS	PRICE			ADJUSTED PRICE	
				1983	1991	CHANGE	1991	CHANGE
1	16	53834	19906	\$12.97	\$14.74	\$1.77	\$15.11	\$2.13
2	22	258741	53963	\$10.66	\$9.85	(\$0.81)	\$9.71	(\$0.95)
3	100	704034	156207	\$8.86	\$9.80	\$0.93	\$9.85	\$0.98
4	105	714145	142738	\$6.39	\$7.65	\$1.26	\$7.62	\$1.23
5	7	1718953	145700	\$7.65	\$8.26	\$0.61	\$8.26	\$0.61
6	10	86722	8318	\$8.18	\$9.34	\$1.16	\$9.34	\$1.16
TOTAL:				AVE:	AVE:	AVE:	AVE:	AVE:
260				3536429	526832	\$9.12	\$9.94	\$0.82
							\$9.98	\$0.86

GOVERNMENTAL LEASE RATES
FEDERAL GRAZING STUDY UPDATE
 Lau, Mitchell & Assoc., 3/92
West Wide Totals

AREA	NO. LEASES	NO. ACRES	NO. ANIMALS	PRICE			ADJUSTED PRICE	
				1983	1991	CHANGE	1991	CHANGE
1	5	2705700	339450	\$6.19	\$9.57	\$3.38	\$9.77	\$3.58
2	4	34928	3600	\$8.86	\$8.84	(\$0.02)	\$8.84	(\$0.02)
3	5	4940	216	\$6.36	\$10.09	\$3.73	\$10.09	\$3.73
4	18	139533	174912	\$7.44	\$7.87	\$0.43	\$7.87	\$0.43
5	9	398532	34556	\$5.36	\$7.96	\$2.10	\$7.96	\$2.10
6	15	132939	56221	\$11.59	\$13.84	\$2.25	\$13.45	\$1.86
TOTAL:				AVE:	AVE:	AVE:	AVE:	AVE:
56				3416572	608955	\$7.72	\$9.70	\$1.98
							\$9.66	\$1.95



PRICING AREA 1

Price Area 1

Physical Description --

Price Area 1 includes the easterly two-thirds of North Dakota, all of South Dakota, a portion of southeast Wyoming, counties in Nebraska - north of the Platte River and the Colorado line, as well as Weld County, Colorado. This area includes some of the more productive range in the western United States. Precipitation is generally 20 inches or more with a growing season of more than 250 days. Population densities are generally low, with topography ranging from essentially level to hilly. Winter can be quite severe with high winds, cold temperatures and snow, causing some hazard to livestock in the early spring and fall.

This price area generally covers portions of the short- and tall-grass prairie provinces. Grazing in this area is generally during the spring, summer, and fall.

Public Rangeland Data

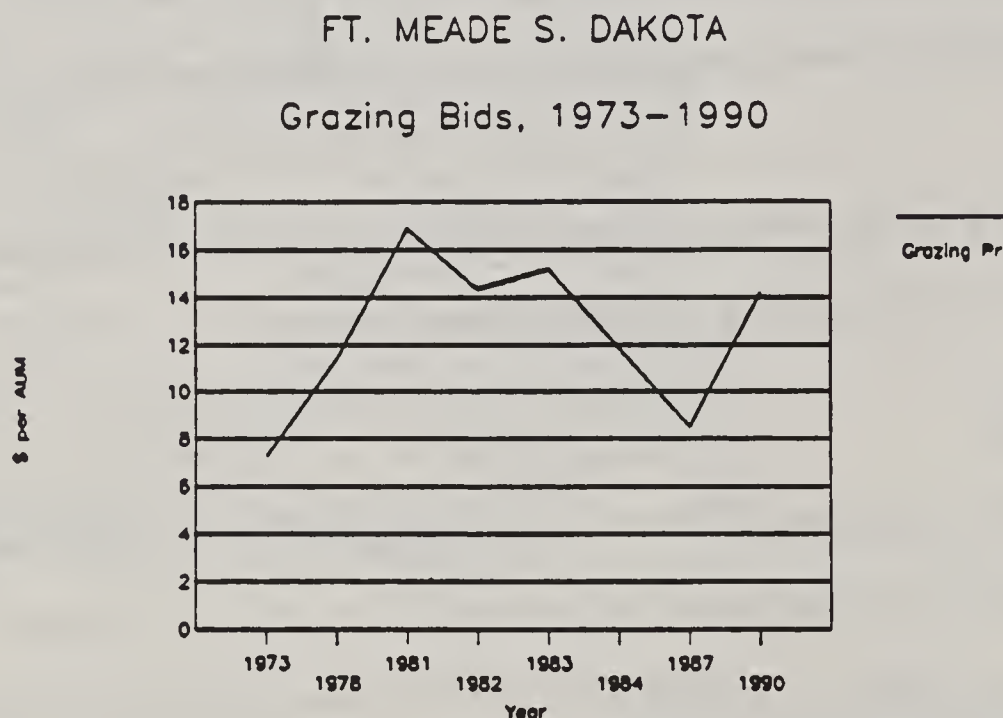
Considerable data regarding the public rangelands within Price Area 1 is provided by Tables MC-1-1 and MC-1-2, Pages 144 and 145, Volume I of the October 1983 report.

In summary, it is notable that of the 3,622,616 acres of public rangeland, 35 percent is in National Grasslands (NGL) jurisdiction - a higher percentage than any of the price areas. National Forest (NF) is 40 percent and BLM is 25 percent. This price area represents only 1.2 percent of the gross number of acres of public rangeland in the western 17 states. The average stocking rate of 4.36 acres per AUM on public rangelands confirms this designated area as having the best quality grazing of the six areas studied.

Valuation - Mature Cattle and Horses

On the following page is a summary of the updated transaction data accumulated for this price area.

The Fort Meade property in South Dakota is described in the October 1983 report. The grazing continues to be bid on an open basis, every three years, for three year terms. There are 1,261 AUMs, or 227 cows with calf on one unit and 699 AUMs, or 138 cows with calf on the other unit. The following graph depicts the variations that occur in the bid grazing rates.



The 1992 rate is 6.7 percent, or \$1.01 less (\$15.17 to \$14.16 per AUM) than the rate paid in 1983.

Payment is in advance for each year. Fence repairs are the responsibility of the lessee. Water (mostly springs and streams) is maintained by the BLM. The Government

PRIVATE GRAZING LEASE RATES-MATURE CATTLE
FEDERAL GRAZING STUDY UPDATE
LAU, MITCHELL & ASSOC., 3/92
PRICING AREA 1

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
1	310090035	NE	BLAINE	2560	PAIR	1200	\$22.21	\$16.67	(\$5.54)	\$20.00	(\$2.21)
1	08123NEW	CO	WELD	640	PAIR	52	\$8.21	\$6.15	(\$2.06)	\$6.15	(\$2.06)
1	46019NEW	SD	BUTTE	5000	PAIR	3240	\$12.82	\$12.82	\$0.00	\$12.82	\$0.00
1	081230006	CO	WELD	5500	PAIR	1375	\$13.00	\$13.00	\$0.00	\$13.00	\$0.00
1	461030018	SD	PENNINGT	2860	PAIR	1080	\$13.24	\$13.24	\$0.00	\$13.24	\$0.00
1	310450013	NE	DAWES	3800	PAIR	1075	\$15.00	\$15.00	\$0.00	\$15.00	\$0.00
1	460630047	SD	HARDING	7000	PAIR	1968	\$12.45	\$12.50	\$0.05	\$12.50	\$0.05
1	460330023	SD	CUSTER	230	PAIR	84	\$12.44	\$13.69	\$1.25	\$13.69	\$1.25
1	310310019	NE	CHERRY	7680	PAIR	2625	\$16.00	\$18.00	\$2.00	\$18.00	\$2.00
1	310450008	NE	DAWES	1000	PAIR	480	\$10.42	\$12.50	\$2.08	\$12.50	\$2.08
1	460470001	SD	FALL RIVER	2300	PAIR	920	\$12.00	\$15.00	\$3.00	\$15.00	\$3.00
1	460470014	SD	FALL RIVER	1480	PAIR	282	\$10.64	\$14.18	\$3.54	\$14.18	\$3.54
1	311710020	NE	THOMAS	7134	PAIR	3600	\$5.95	\$7.43	\$1.48	\$10.00	\$4.05
1	310090021	NE	BLAINE	2750	PAIR	1000	\$15.00	\$20.00	\$5.00	\$20.00	\$5.00
1	46063NEW	SD	HARDING	2000	PAIR	600	\$8.00	\$13.33	\$5.33	\$13.33	\$5.33
1	310310019	NE	CHERRY	1900	PAIR	325	\$20.19	\$32.31	\$12.12	\$32.31	\$12.12
TOTAL:				53834	TOTAL:		19906	AVE:	AVE:	AVE:	AVE:
16								\$12.97	\$14.74	\$1.77	\$15.11
										\$2.13	

GOVERNMENTAL RENTAL RATES
FEDERAL GRAZING STUDY UPDATE
Lau, Mitchell & Assoc., 3/92
PRICING AREA 1

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
1	NEW	NE	ALL	1500000	UK	UK		12.85		\$12.85	
1	NEW	SD	TODD					\$7.15		\$7.15	
1	NONE	SD	MEADE	5700	PAIR	1960	\$15.17	\$14.16	(\$1.01)	\$15.17	\$0.00
1	NEW	SD	ALL	UK	UK	UK	\$4.00	\$6.00	\$2.00	\$6.00	\$2.00
1	NEW	SD	JACKSON	1200000	PAIR	337490	\$5.60	\$7.70	\$2.10	\$7.70	\$2.10
TOTAL:				2705700	TOTAL:		339450	AVE:	AVE:	AVE:	AVE:
5								\$6.19	\$9.57	\$3.38	\$9.77
										\$3.58	

is not liable for any loss of livestock. The Government can terminate the contract with 30 days written notice. Grazing must be done in accordance with the management plan.

This is excellent pasture. The lessee can be assured the land has not been overgrazed and that water will be dependable at a reasonable distance. However, there is considerable public recreational traffic within the perimeters of the land.

The current leases were bid in November 1989 to apply to the 1990 - 1992 grazing seasons (May 15 to October 30). Investigation of other leases in the neighborhood suggest if this pasture were offered on the market as of January 1, 1992 the price would have been slightly higher, thus denoting a level to slightly higher change from 1983 to 1992, rather than the previously indicated minus 6.7 percent.

The 16 observations involving private lands provide a wide range of prices being paid in 1991, however, 10 of the 16 are from \$12.50 to \$15.00. The changes from 1983 figures range from down \$2.21 per AUM to up \$12.12. With 12 of the changes, the median is \$1.75. The private land lease data therefore suggests an increase of \$1.75 to \$2.50 per HDMO-PRMO.

The lease rates on government land in Price Area 1 increased an average of \$3.58 per AUM during the study period. The Nebraska and South Dakota rates paid for state leased land are included, however, the prices vary substantially with \$6.00 for South Dakota and \$12.85 for Nebraska. The average of the other three observations is about \$10.00 and therefore the total averages are not materially affected by including the state leases.

Although the change in averages, 1983-91, is \$3.58, the rate indicated by these governmental leases is at nearly \$10.00, which would be no change from the October 1983 report. However, due to the open market conditions by which the Ft. Meade leases are

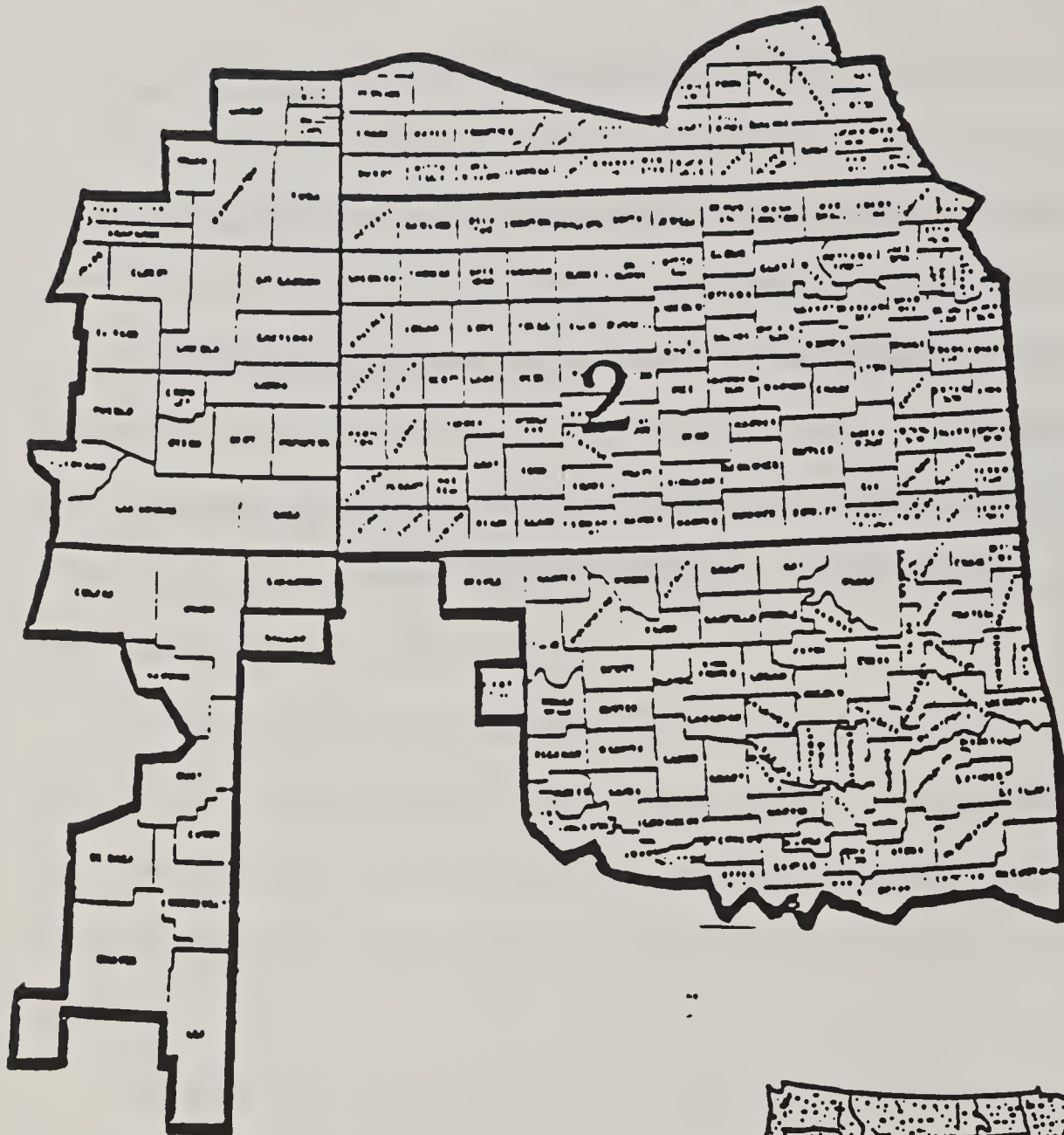
negotiated with a current rate of \$15.17, the change from the October 1983 report would definitely be up.

The NASS data for this region is up approximately \$1.75 to \$2.00 and the knowledgeable opinion poll is definitely up.

Considering the higher rates indicated for the current date, a change of plus \$2.00 is considered appropriate.

The 1983 figure was \$10.00. The updated private land lease rate is therefore:

$$\text{\$10.00} + \text{\$2.00} = \text{\$12.00 per HDMO-PRMO}$$



Price Area 2

Physical Description

Price Area 2 is located immediately south of Price Area 1, beginning in Nebraska at the Platte River and extending southward through Kansas and Oklahoma to the North Texas border, but including Dallam and Hemphill Counties in Texas. (Both of these Texas counties contain National Grasslands under the administration of Region 3, FS). The eastern boundary is the Oklahoma-Arkansas, Kansas-Missouri and portions of the Nebraska-Iowa borders. It then extends west to central Colorado and into eastern New Mexico. The western boundary approximates the "Front Range" of the Eastern Rocky Mountains, separating the mountainous area from the eastern prairie. The southerly boundary is ragged, meandering along the southern county lines of Lea and Chaves Counties, New Mexico, then extending north along the Texas-New Mexico border to the southern boundary of Dallam County, Texas; the eastern boundary of Cimarron County, Oklahoma; east along the Kansas-Oklahoma border; and then south along the western and southern boundary of Beaver County, Oklahoma, before returning to the Oklahoma-Texas border. This boundary then extends south to the southern boundary of Oklahoma and east to the Arkansas line.

The topography of the area is similar to Price Area 1 except that it is more mountainous in its westerly portions. The eastern part of this pricing area is a continuation of the tall-grass prairie province, with the western portion in the more arid Great Plains short-grass prairie province. Grazing in this area is generally during the spring, summer and fall.

Public Rangeland Data

Considerable data regarding the public rangelands within Price Area 2 is provided by Tables MC-2-1 and MC-2-2, Pages 158 and 159, Volume I of the October 1983 report.

In summary, of the 2,928,466 acres, 27 percent is in the National Grassland jurisdiction - the second highest percentage of any of the pricing areas, National Forest is 12 percent and BLM is 61 percent. This pricing area represents only 1.0 percent of the gross number of acres of public rangelands in the western 17 states. The average stocking rate of 5.05 acres per AUM on public rangeland denotes this area as having the second best quality grazing of the six areas studied.

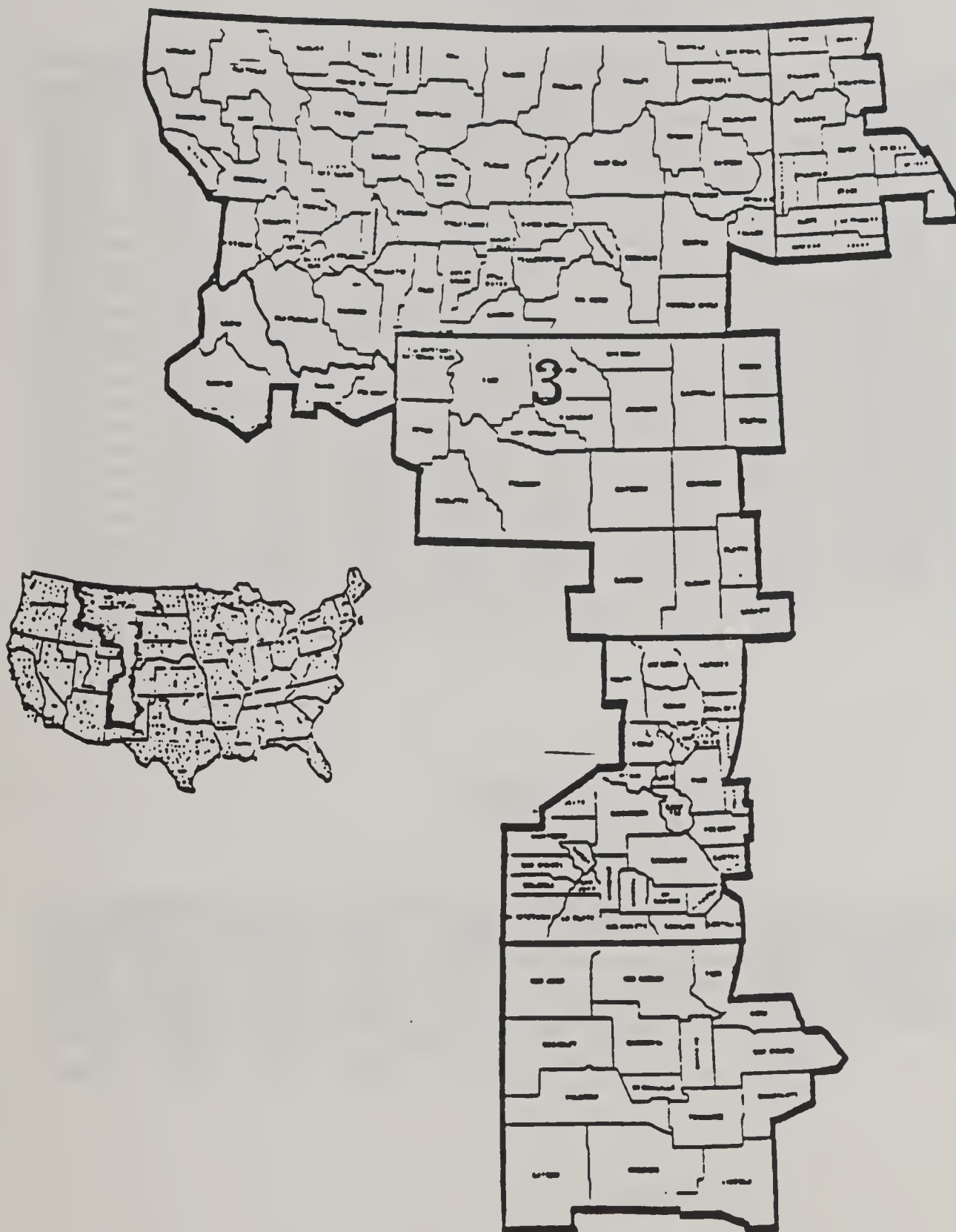
Valuation

Following is a summary of the updated transaction data accumulated for this pricing area. The 22 observations of private land grazing leases show changes from 1983 data, ranging from a minus \$7.19 to a plus of \$2.11. Eight of the data show minus figures, six show no change and eight show pluses. The median is a minus \$0.95. The private land figures would therefore suggest a zero to minus \$1.00 change.

The NASS data for the five states within this pricing area average an upward change of \$1.21. Limited data from the knowledgeable opinion poll reflects a plus of about \$2.00.

Giving considerable weight to the rates provided by the study of leases involving private lands - a minus, off-set by the pluses reflected by the other sources, the result is no change.

The 1983 figure was \$7.50. The updated private land lease rate is therefore \$7.50 per HDMO-PRMO.



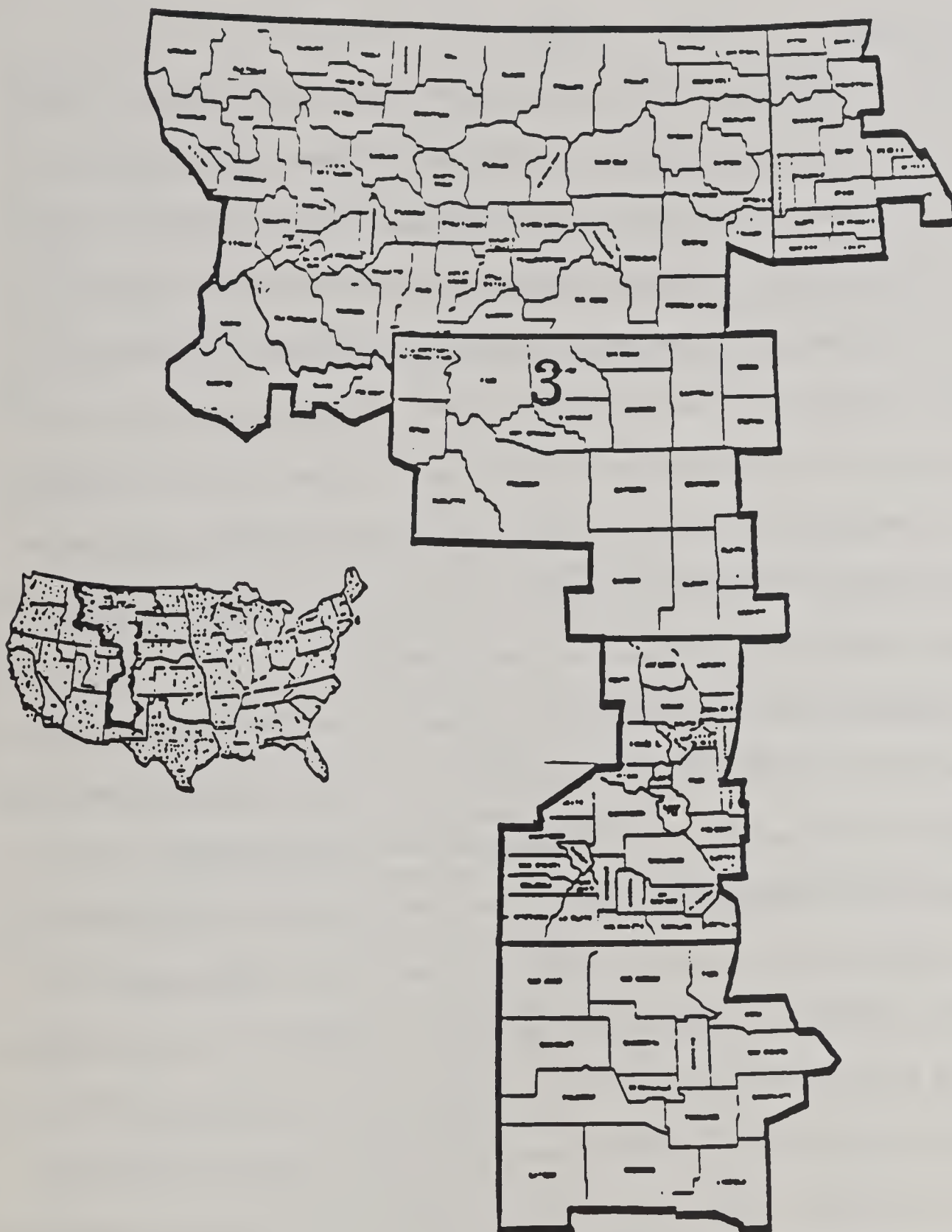
PRICING AREA 3

PRIVATE GRAZING LEASE RATES-MATURE CATTLE
FEDERAL GRAZING STUDY UPDATE
LAU, MITCHELL & ASSOC., 3/92
PRICING AREA 2

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
2	080250044	CO	CROWLEY	4896	PAIR	720	\$22.00	\$22.00	\$0.00	\$14.81	(\$7.19)
2	080550017	CO	HUERFANO	3000	PAIR	2400	\$8.31	\$2.92	(\$5.39)	\$2.92	(\$5.39)
2	080550061	CO	HUERFANO	780	COW	210	\$15.00	\$10.00	(\$5.00)	\$10.00	(\$5.00)
2	080550061	CO	HUERFANO	3000	PAIR	925	\$15.00	\$10.00	(\$5.00)	\$10.00	(\$5.00)
2	080410009	CO	EL PASO	5000	PAIR	2400	\$11.50	\$7.50	(\$4.00)	\$7.50	(\$4.00)
2	080110042	CO	BENT	2800	PAIR	1134	\$13.20	\$10.00	(\$3.20)	\$10.00	(\$3.20)
2	350110009	NM	DE BACA	30781	PAIR	6000	\$8.47	\$6.41	(\$2.06)	\$6.41	(\$2.06)
2	080410003	CO	EL PASO	20000	AUMS		\$12.00	\$10.00	(\$2.00)	\$10.00	(\$2.00)
2	060990040	CO	PROWERS	UK	AUMS		\$2.00	\$2.00	\$0.00	\$2.00	\$0.00
2	081010032	CO	PUEBLO	4000	COWS	1200	\$9.00	\$5.50	(\$3.50)	\$9.00	\$0.00
2	060990007	CO	PROWERS	5000	PAIR	1300	\$12.00	\$12.00	\$0.00	\$12.00	\$0.00
2	350590132	NM	UNION	65000	PAIR	12000	\$13.00	\$13.00	\$0.00	\$13.00	\$0.00
2	080710019	CO	LAS ANIMA	1000	PAIR	240	\$16.67	\$16.67	\$0.00	\$16.67	\$0.00
2	080890004	CO	OTERO	1356	PAIR		\$23.44	\$23.44	\$0.00	\$23.44	\$0.00
2	0020	OK	ROGER MIL	2820	PAIR	2256	\$5.00	\$5.62	\$0.62	\$5.62	\$0.62
2	080890037	CO	OTERO	27000	PAIR	6600	\$7.71	\$8.33	\$0.62	\$9.00	\$1.29
2	060710121	CO	LAS ANIMA	8400	PAIR	1440	\$11.67	\$13.13	\$1.46	\$13.13	\$1.46
2	080610020	CO	KIOWA	1548	PAIR	744	\$4.16	\$5.72	\$1.56	\$5.72	\$1.56
2	350590046	NM	UNION	13440	PAIR	4200	\$8.57	\$10.48	\$1.91	\$10.48	\$1.91
2	060710029	CO	LAS ANIMA	20000	PAIR	6000	\$5.00	\$7.00	\$2.00	\$7.00	\$2.00
2	080110007	CO	BENT	5240	PAIR	594	\$8.00	\$10.00	\$2.00	\$10.00	\$2.00
2	350250012	NM	LEA	23680	PAIR	3600	\$2.82	\$4.93	\$2.11	\$4.93	\$2.11
TOTAL:				258741	TOTAL:		AVE:	AVE:	AVE:	AVE:	AVE:
22					53963		\$10.66	\$9.85	(\$0.81)	\$9.71	(\$0.95)

GOVERNMENTAL RENTAL RATES
FEDERAL GRAZING STUDY UPDATE
LAU, MITCHELL & ASSOC., 3/92
PRICING AREA 2

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
2	0117	OK	CIMARRON	3920	COWS		\$4.72	\$3.50	(\$1.22)	\$3.50	(\$1.22)
2	0093	OK	CIMARRON	5972	COWS		\$4.44	\$3.50	(\$0.94)	\$3.50	(\$0.94)
2	080890004	CO	OTERO	1356	PAIR		\$23.44	\$23.44	\$0.00	\$23.44	\$0.00
2	350250012	NM	LEA	23680	PAIR	3600	\$2.82	\$4.93	\$2.11	\$4.93	\$2.11
TOTAL:				34928	TOTAL:		AVE:	AVE:	AVE:	AVE:	AVE:
4					3600		\$8.86	\$8.84	(\$0.01)	\$8.84	(\$0.01)



PRICING AREA 3

Price Area 3

Physical Description

Price Area 3 includes the western third of North Dakota, all of Montana, a portion of east-central Idaho, all of Wyoming (except the three southwestern more counties and two counties in the east-central portion of the state bordering on Nebraska and South Dakota), all of the mountainous part of Colorado (except the four northwestern most counties), and all of the mountainous area of New Mexico, leaving the desert area of the southern and plains eastern portions of the state in other pricing areas. This pricing area is made up of mountainous areas with coniferous forests and mountain meadows, the prairies of eastern Montana and Wyoming, the Missouri River Breaks of northeastern Montana, and a portion of the grassland prairie of western North Dakota. The grazing seasons in this pricing area are limited by weather with severe winters and mild summers.

The vegetative cover of this pricing area is dominated by the Great Plains short-grass prairie province in its northeastern area, and mixed conifer forest with mountain parks in the remaining mountainous areas. The topographic characteristics generally are quite mountainous, with the exception of the Missouri River Breaks in north-central Montana and the gently rolling prairie to the south and east. The Missouri River Breaks surface area is broken, with numerous deep drainages extending to the Ft. Peck Reservoir. Frost-free days in this pricing area run from less than 100 in the northern portion of the area to more than 250 in the southern areas. Price Area 3 is usually quite dry with precipitation generally in the 10 to 15 inch range. Winters can be quite severe with blizzard conditions relatively common. The summers are typically very warm and dry except for scattered thunderstorms, which on occasion can cause flash flooding. Grazing in this area is generally during the spring, summer, and fall.

Public Rangeland Data

Numerous data regarding the public rangelands within Price Area 3 is provided by Tables MC-3-1 and MC-3-2, Pages 170 and 171, Volume I of the October 1983 report.

There is a total of 81,605,756 gross acres in this pricing area which constitutes 26.5 percent of all public rangelands within the western 17 states. Of that total only 2 percent is NGL, 54 percent NF and 44 percent BLM. The average stocking rate is 8.56 acres per AUM on the public rangelands, which is slightly better than average for the total "westwide" area.

Valuation

Following is a summary of the updated transaction data accumulated for Price Area 3. The 100 observations involving private land show changes from the October 1983 data ranging from a minus \$4.83 to a plus of \$7.50. Twelve of the data show minus figures, 33 show no change, and 55 show pluses. The median is a plus \$0.98 which is a strong indicator, based on the substantial amount of information available.

The average of the governmental rental rates increased markedly (\$3.73), however, some of the highest rates are for above average pasture.

The NASS data for the six states included within Price Area 3 average an increase of \$0.41, however, the four states making up the majority of the area, average a decrease of \$1.76. Forty opinions from knowledgeable sources suggest an increase of over \$3.00.

As a result of these analyses, the private land lease rate for Price Area 3 is determined to have changed upward \$1.00 over the \$8.00 per HDMO-PRMO reported in the October 1983 report.

$$\text{\$8.00} + \text{\$1.00} = \text{\$9.00}$$

PRIVATE GRAZING LEASE RATES-MATURE CATTLE
FEDERAL GRAZING STUDY UPDATE
LAU, MITCHELL & ASSOC., 3/92
PRICING AREA 3

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
3	080130005	CO	BOULDER	500	PAIR	240	\$16.50	\$11.67	(\$4.83)	\$11.67	(\$4.83)
3	560250010	WY	NATRONA	2000	PAIR	873	\$13.35	\$8.55	(\$4.80)	\$8.55	(\$4.80)
3	560390012	WY	TETON	200	PAIR	120	\$12.00	\$8.33	(\$3.67)	\$8.33	(\$3.67)
3	560090002	WY	CONVERSE	1070	PAIR	2000	\$12.00	\$9.00	(\$3.00)	\$9.00	(\$3.00)
3	0033	MT	PETROLEE	8000	PAIR	2800	\$11.67	\$9.00	(\$2.67)	\$9.00	(\$2.67)
3	301030012	MT	TREASURE	5120	PAIR	750	\$15.36	\$13.33	(\$2.03)	\$13.33	(\$2.03)
3	080690011	CO	LARIMER	960	PAIR	216	\$15.00	\$13.00	(\$2.00)	\$13.00	(\$2.00)
3	080690011	CO	LARIMER	960	PAIR	216	\$15.00	\$13.00	(\$2.00)	\$13.00	(\$2.00)
3	560350034	WY	SUBLETTE	1200	PAIR	750	\$13.64	\$12.00	(\$1.64)	\$12.00	(\$1.64)
3	0034	MT	UNKNOWN		PAIR		\$15.24	\$14.00	(\$1.24)	\$14.00	(\$1.24)
3	560190031	WY	JOHNSON	26000	COWS	7440	\$6.72	\$6.05	(\$0.67)	\$6.05	(\$0.67)
3	0016	MT	BLAINE	1002	PAIR		\$7.11	\$7.00	(\$0.11)	\$7.00	(\$0.11)
3	080270003	CO	CUSTER	640	PAIR	160	\$4.00	\$3.75	(\$0.25)	\$4.00	\$0.00
3	300750018	MT	POWDER R	6500	PAIR	970	\$4.95	\$4.95	\$0.00	\$4.95	\$0.00
3	0063	MT	FERGUS	3000	PAIR	500	\$5.00	\$5.00	\$0.00	\$5.00	\$0.00
3	56025NEW	WY	NATRONA	45000	PAIR	6900	\$5.07	\$5.07	\$0.00	\$5.07	\$0.00
3	080850055	CO	MONTROS	600	PAIR	300	\$6.00	\$6.00	\$0.00	\$6.00	\$0.00
3	081190003	CO	TELLER	3000	PAIR	300	\$6.00	\$6.00	\$0.00	\$6.00	\$0.00
3	080850055	CO	MONTROS	1600	PAIR	300	\$6.00	\$6.00	\$0.00	\$6.00	\$0.00
3	081190004	CO	TELLER	2200	PAIR	300	\$6.17	\$6.17	\$0.00	\$6.17	\$0.00
3	560130045	WY	FREMONT	9120	PAIR	1664	\$7.13	\$7.13	\$0.00	\$7.13	\$0.00
3	560050018	WY	CAMPBELL	2400	PAIR	600	\$7.50	\$7.50	\$0.00	\$7.50	\$0.00
3	30025NEW	MT	FALLON	3840	PAIR	180	\$7.87	\$7.87	\$0.00	\$7.87	\$0.00
3	0006	ND	McKENGIE	800	PAIR	400	\$8.00	\$8.00	\$0.00	\$8.00	\$0.00
3	350390002	NM	RIO ARRIBA	4200	PAIR	1200	\$8.00	\$8.00	\$0.00	\$8.00	\$0.00
3	300830012	MT	RICHLAND	1500	PAIR	1650	\$8.00	\$8.00	\$0.00	\$8.00	\$0.00
3	300090014	MT	CARBON	2000	PAIR	875	\$9.14	\$9.14	\$0.00	\$9.14	\$0.00
3	080130007	CO	BOULDER	2000	PAIR	625	\$9.60	\$9.60	\$0.00	\$9.60	\$0.00
3	080330010	CO	DOLORES	2500	PAIR	900	\$10.00	\$10.00	\$0.00	\$10.00	\$0.00
3	300210032	MT	DAWSON	1920	PAIR	750	\$10.00	\$10.00	\$0.00	\$10.00	\$0.00
3	0007	MT	DEER LODGE		PAIR	2000	\$10.00	\$10.00	\$0.00	\$10.00	\$0.00
3	080330010	CO	DOLORES	2500	PAIR	900	\$10.00	\$10.00	\$0.00	\$10.00	\$0.00
3	560430021	WY	WASHAKIE	1180	PAIR	600	\$10.00	\$13.00	\$3.00	\$10.00	\$0.00
3	0005	MT	CASCADE	2500	PAIR	375	\$10.00	\$10.00	\$0.00	\$10.00	\$0.00
3	0003	MT	CHOUTEAU	4000	PAIR		\$10.00	\$10.00	\$0.00	\$10.00	\$0.00
3	0003	MT	TETON	4500	PAIR	1600	\$10.00	\$10.00	\$0.00	\$10.00	\$0.00
3	080830006	CO	MONTESUMA	400	PAIR	200	\$11.00	\$11.00	\$0.00	\$11.00	\$0.00
3	0011	MT	MISSOULA	1000	PAIR		\$11.00	\$11.00	\$0.00	\$11.00	\$0.00
3	080430019	CO	FREMONT	6000	PAIR		\$11.25	\$11.25	\$0.00	\$11.25	\$0.00
3	NEW	MT	PARK		AUMS		\$12.00	\$12.00	\$0.00	\$12.00	\$0.00
3	0015	MT	WHEATLAND	1400	PAIR	350	\$12.00	\$12.00	\$0.00	\$12.00	\$0.00
3	0002	MT	LEWIS & CL	3500	PAIR	425	\$12.00	\$12.00	\$0.00	\$12.00	\$0.00
3	301030011	MT	TREASURE	10000	PAIR	1800	\$13.89	\$13.89	\$0.00	\$13.89	\$0.00
3	081070013	CO	ROUTT	100	HORSES	16	\$20.00	\$25.00	\$5.00	\$20.00	\$0.00
3	0010	ND	GRANT	1920	PAIR		\$23.00	\$23.00	\$0.00	\$23.00	\$0.00
3	300550012	MT	McCONE	32000	PAIR	9000	\$3.61	\$3.89	\$0.28	\$3.89	\$0.28
3	56009NEW	WY	CONVERSE	300	PAIR	70	\$4.29	\$4.71	\$0.42	\$4.71	\$0.42
3	0017	MT	MISSOULA	160	PAIR		\$8.00	\$8.50	\$0.50	\$8.50	\$0.50
3	081130010	CO	SAN MIGUEL	8000	PAIR	4950	\$8.50	\$12.00	\$3.50	\$9.00	\$0.50
3	301090009	MT	WIBAUX	1600	PAIR	250	\$10.00	\$10.50	\$0.50	\$10.50	\$0.50
3	300790005	MT	PRAIRIE	1500	PAIR	912	\$10.50	\$11.00	\$0.50	\$11.00	\$0.50
3	560110048	WY	CROOK	2000	PAIR	750	\$12.00	\$12.50	\$0.50	\$12.50	\$0.50
3	560070035	WY	CARBON	54297	PAIR	13200	\$3.75	\$4.35	\$0.60	\$4.35	\$0.60
3	300330003	MT	GARFIELD	40200	PAIR	14640	\$5.00	\$5.60	\$0.60	\$5.60	\$0.60

3	300950009	MT	STILLWATE	3000	PAIR	330	\$12.00	\$12.00	\$0.00	\$12.60	\$0.60																												
3	560170009	WY	HOT SPRIN	30000	PAIR	3300	\$5.30	\$5.91	\$0.61	\$5.91	\$0.61																												
3	080230002	CO	COSTILLA	41300	PAIR	4860	\$7.00	\$7.50	\$0.50	\$7.75	\$0.75																												
3	560170002	WY	HOT SPRIN	1600	PAIR	600	\$7.50	\$8.33	\$0.83	\$8.33	\$0.83																												
3	300550011	MT	McCONE	25600	PAIR	2430	\$5.11	\$6.00	\$0.89	\$6.00	\$0.89																												
3	300950014	MT	STILLWATE	7040	PAIR	2120	\$5.69	\$6.64	\$0.95	\$6.64	\$0.95																												
3	080190002	CO	CLEAR CRE	4500	PAIR	342	\$3.00	\$4.00	\$1.00	\$4.00	\$1.00																												
3	080230010	CO	COSTILLA	77000	PAIR	525	\$5.00	\$6.00	\$1.00	\$6.00	\$1.00																												
3	560070016	WY	CARBON	23000	PAIR	2000	\$5.60	\$6.60	\$1.00	\$6.60	\$1.00																												
3	0005	ND	SLOPE	4250	PAIR	1776	\$6.00	\$7.00	\$1.00	\$7.00	\$1.00																												
3	08107NEW	CO	ROUTT	750	PAIR	1008	\$7.00	\$5.50	(\$1.50)	\$8.00	\$1.00																												
3	081070028	CO	ROUTT	1200	PAIR	750	\$8.00	\$9.00	\$1.00	\$9.00	\$1.00																												
3	560070021	WY	CARBON	20000	PAIR	714	\$9.00	\$10.00	\$1.00	\$10.00	\$1.00																												
3	300090026	MT	CARBON	525	PAIR	167	\$12.97	\$14.17	\$1.20	\$14.17	\$1.20																												
3	560110011	WY	CROOK	5800	PAIR	1688	\$2.24	\$3.50	\$1.26	\$3.50	\$1.26																												
3	560010029	WY	ALBANY	4000	PAIR	1000	\$6.20	\$8.00	\$1.80	\$8.00	\$1.80																												
3	560330030	WY	SHERIDAN	3000	PAIR	1500	\$10.14	\$12.00	\$1.86	\$12.00	\$1.86																												
3	300550003	MT	McCONE	12400	PAIR	4000	\$7.51	\$9.43	\$1.92	\$9.43	\$1.92																												
3	0014	MT	PARK	1800	PAIR	500	\$8.00	\$10.00	\$2.00	\$10.00	\$2.00																												
3	080330006	CO	DOLORES	1000	PAIR	550	\$10.00	\$12.00	\$2.00	\$12.00	\$2.00																												
3	30025NEW	MT	FALLON	4480	PAIR	1570	\$12.00	\$14.00	\$2.00	\$14.00	\$2.00																												
3	080650010	CO	LAKE	7000	PAIR	10500	\$2.50	\$5.00	\$2.50	\$5.00	\$2.50																												
3	080850003	CO	GUNNISON	900	PAIR	400	\$6.25	\$6.25	\$0.00	\$8.75	\$2.50																												
3	081090016	CO	SAGUACHE	2900	PAIR	1200	\$7.50	\$9.17	\$1.67	\$10.00	\$2.50																												
3	08109NEW	CO	SAGUACHE	300	PAIR		\$8.00	\$10.50	\$2.50	\$10.50	\$2.50																												
3	081130029	CO	SAN MIGUE	640	PAIR	78	\$10.00	\$12.50	\$2.50	\$12.50	\$2.50																												
3	30109NEW	MT	WIBAU	2080	PAIR	690	\$7.25	\$10.00	\$2.75	\$10.00	\$2.75																												
3	080290033	CO	DELTA	2000	PAIR	360	\$7.50	\$10.50	\$3.00	\$10.50	\$3.00																												
3	NEW	MT	GRANT		PAIR		\$10.00	\$13.00	\$3.00	\$13.00	\$3.00																												
3	0035	ID	BONNEVILLE	14000	PAIR		\$12.00	\$15.00	\$3.00	\$15.00	\$3.00																												
3	30017NEW	MT	CUSTER	1500	PAIR	440	\$12.00	\$15.00	\$3.00	\$15.00	\$3.00																												
3	0008	MT	PETROLEUM		PAIR		\$3.11	\$6.14	\$3.03	\$6.14	\$3.03																												
3	560350033	WY	SUBLETTE	5785	PAIR	1365	\$4.45	\$7.91	\$3.46	\$7.91	\$3.46																												
3	0105	MT	FERGUS		AUMS		\$7.50	\$11.00	\$3.50	\$11.00	\$3.50																												
3	0012	MT	LEWIS & CL	3640	PAIR	1000	\$8.00	\$12.00	\$4.00	\$12.00	\$4.00																												
3	0007	MT	WHEATLAN	1920	PAIR		\$10.00	\$14.00	\$4.00	\$14.00	\$4.00																												
3	30079NEW	MT	PRAIRIE	6400	PAIR	1300	\$10.00	\$14.00	\$4.00	\$14.00	\$4.00																												
3	0001	ND	GOLDEN VALLEY		PAIR	1000	\$12.00	\$16.00	\$4.00	\$16.00	\$4.00																												
3	0040	MT	VALLEY		PAIR	200	\$7.81	\$12.00	\$4.19	\$12.00	\$4.19																												
3	0022	MT	MEAGHER	6300	PAIR	2600	\$9.62	\$14.04	\$4.42	\$14.04	\$4.42																												
3	0015	MT	WHEATLAND		AUMS		\$12.00	\$16.50	\$4.50	\$16.50	\$4.50																												
3	300370011	MT	GOLDEN V	5000	PAIR	675	\$7.41	\$7.41	\$0.00	\$13.00	\$5.59																												
3	081130016	CO	SANMIGUE	6035	PAIR	87	\$5.71	\$11.49	\$5.78	\$11.49	\$5.78																												
3	560050005	WY	CAMPBELL	12400	PAIR	3600	\$4.15	\$7.50	\$3.35	\$10.00	\$5.85																												
3	080470001	CO	GILPIN	100	PAIR	15	\$8.00	\$14.00	\$6.00	\$14.00	\$6.00																												
3	300330005	MT	GARFIELD	12000	PAIR	750	\$4.50	\$11.00	\$6.50	\$12.00	\$7.50																												
TOTAL:				100	TOTAL:				704034	TOTAL:				156207	AVE:				\$8.86	AVE:				\$9.80	AVE:				\$0.93	AVE:				\$9.85	AVE:				\$0.98

GOVERNMENTAL RENTAL RATES
FEDERAL GRAZING STUDY UPDATE
Lau, Mitchell & Assoc., 3/92
PRICING AREA 3

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
3	NEW	NM	UK		PAIR	1656		\$12.23		\$12.23	
3	0020	MT	STILLWATER	640	UK	154	\$20.80	\$6.14	(\$14.66)	\$6.14	(\$14.66)
3	NEW	MT	UK	UK	UK	UK	\$14.00	\$7.00	(\$7.00)	\$14.00	\$0.00
3	080570067	CO	JACKSON	3833	VALNGS	2146	\$6.50	\$7.50	\$1.00	\$7.50	\$1.00
3	NEW	WY	ALL	UK	UK	UK	\$1.45	\$2.50	\$1.05	\$2.50	\$1.05
3	300090026	MT	CARBON	525	COWS	167	\$12.97	\$14.17	\$1.20	\$14.17	\$1.20
3	NEW	MT	ALL	UK	UK	UK	\$2.97	\$4.17	\$1.20	\$4.17	\$1.20
3	0013	NM	SAN MIGUEL	2500	PAIR	725	\$6.00	\$7.50	\$1.50	\$7.50	\$1.50
3	NEW	CO	ALL	UK	UK	UK	\$3.00	\$4.52	\$1.52	\$4.52	\$1.52
3	NEW	MT	UK			160	\$4.38	\$6.00	\$1.62	\$6.00	\$1.62
3	0004	CO	LAPLATA	UK	PAIR	UK	\$5.00	\$7.00	\$2.00	\$7.00	\$2.00
3	NEW	CO	ALL	UK	UK	UK	\$5.35	\$7.40	\$2.05	\$7.40	\$2.05
3	0077	MT	UK	UK	UK	UK	\$6.00	\$8.44	\$2.44	\$8.44	\$2.44
3	56003004	WY	BIGHORN	4300		100	\$10.80	\$13.60	\$2.80	\$13.60	\$2.80
3	0003	MT	GOLDEN VAL	640	PAIR	116	\$5.97	\$10.34	\$4.37	\$10.34	\$4.37
3	NEW	MT	ALL	UK	UK	UK	\$3.69	\$10.66	\$6.97	\$10.66	\$6.97
TOTAL:				TOTAL	TOTAL		AVE:	AVE:	AVE:	AVE:	AVE:
				5	4940	216	\$6.36	\$10.09	\$3.73	\$10.09	\$3.73



Price Area 4

Physical Description

Price Area 4 contains the seven northern-most counties of California, all of Oregon, all of the State of Washington, all of Idaho (except the four counties in its east-central part), Washoe and Elko Counties in Nevada, the southwestern three counties of Wyoming, the four northwestern-most counties of Colorado, and all of Utah (except the six southern counties bordering on Nevada, and Kane County in the southern portion of the state). This pricing area is quite diverse in its composition as it includes all of the northwestern-most area of the United States with property types ranging from rain-forest in Washington to high desert in Nevada. The binding element of this pricing area is the grazing use pattern predominant throughout its area. Livestock grazing occurs in the transitional foothills between the lower agricultural valley bottoms and timbered mountainous areas. This pattern of utilization is the reason this diverse and populated area is generally homogeneous for livestock production. Numerous of the marine, Mediterranean, and highland provinces are included in this pricing area. The climatic conditions are moderate to wet with generally moderate temperatures. Grazing in Price Area 4 is typically during the spring, summer, and fall.

Public Rangeland Data

Tables MC-4-1 and MC-4-2, Pages 182 and 183, Volume I of the October 1983 report provide copious data regarding the public rangelands within Price Area 4.

This pricing area constitutes 32.4 percent or 99,614,780 acres from the total of all public rangelands. Less than one percent is composed of NGL, 47 percent is NF and 53

percent BLM. The average stocking rate of 12.05 acres per AUM is indicative of the only fair quality grazing as an average throughout this area.

Valuation

Following is a summary of the updated transaction data accumulated for Price Area 4. The 105 private land lease observations reflect a wide range of prices paid in 1991 and depict changes ranging from rates being down \$3.00 to up \$8.00. The median is up \$1.23. Only eight of the observations suggest a downward trend, 27 denote no change and 70 show an upward trend. Considering the volume of information, a plus change of over \$1.00 is strongly indicated.

The 18 governmental rental rate observations show an average increase of \$0.43 per AUM. The changes range from minus \$8.56 to plus \$5.65. The average price denoted for 1991 is \$1.62 above the October 1983 reported price of \$6.25.

The NASS data for the seven states where data is available and represented in Price Area 4 average a positive change of \$1.09, however, the four states which comprise the large majority of this pricing area show an average increase of \$1.88.

The opinion from 29 knowledgeable sources reflect an increase of about \$3.00.

It is therefore considered appropriate that the \$6.25 per HDMO-PRMO private land lease rate reported in 1983 be adjusted upward in the amount of \$1.25, or to \$7.50.

$$\$6.25 + \$1.25 = \$7.50 \text{ per HDMO-PRMO}$$

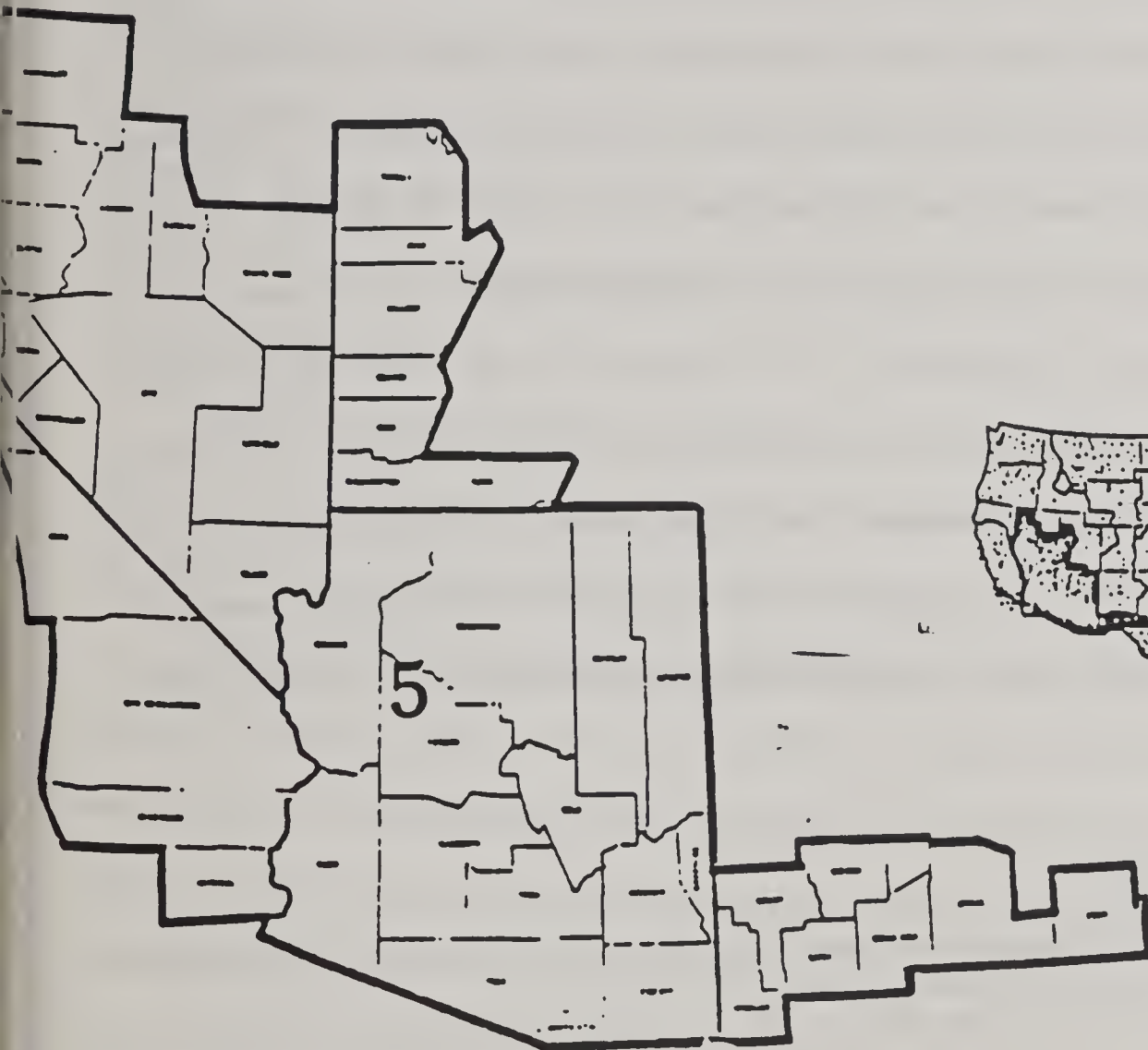
PRIVATE GRAZING LEASE RATES—MATURE CATTLE
FEDERAL GRAZING STUDY UPDATE
LAU, MITCHELL & ASSOC., 3/92
PRICING AREA 4

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
4	560370002	WY	SWEETWATER	VARIES	PAIR	1000	\$9.00	\$6.00	(\$3.00)	\$6.00	(\$3.00)
4	490490026	UT	UTAH	20000	PAIR	4900	\$10.00	\$10.00	\$0.00	\$7.00	(\$3.00)
4	0003	OR	CROOK	22844	PAIR	1600	\$7.79	\$5.71	(\$2.08)	\$5.71	(\$2.08)
4	0030	OR	HARVEY	1800	PAIR	360	\$9.00	\$6.94	(\$2.06)	\$6.94	(\$2.06)
4	08077NEW	CO	MESA	1200	AUMS		\$12.00	\$10.00	(\$2.00)	\$10.00	(\$2.00)
4	0025	ID	CLARK	4000	PAIR	550	\$11.00	\$10.00	(\$1.00)	\$10.00	(\$1.00)
4	0024	OR	UMATILLA	6379	PAIR	834	\$9.41	\$8.48	(\$0.93)	\$8.48	(\$0.93)
4	490190003	UT	GRAND	1290	PAIR	200	\$2.78	\$1.90	(\$0.88)	\$1.90	(\$0.88)
4	0020	WA	OSOTIN	1500	COW		\$1.00	\$1.00	\$0.00	\$1.00	\$0.00
4	0003	ID	BONNER	2000	PAIR	583	\$1.53	\$1.53	\$0.00	\$1.53	\$0.00
4	0008	CA	SISKIYOU	4472	PAIR	2640	\$2.58	\$2.58	\$0.00	\$2.58	\$0.00
4	0024	OR	JACKSON	1500	PAIR	1944	\$3.09	\$3.09	\$0.00	\$3.09	\$0.00
4	0029	OR	WHEELER	3200	PAIR	2223	\$3.14	\$3.14	\$0.00	\$3.14	\$0.00
4	0003	CA	SHASTA	11504	PAIR	392	\$3.23	\$3.23	\$0.00	\$3.23	\$0.00
4	0026	WA	GARFIELD	2837	PAIR	14185	\$3.40	\$3.40	\$0.00	\$3.40	\$0.00
4	0034	ID	BANNOCK	1800	PAIR	560	\$3.57	\$3.57	\$0.00	\$3.57	\$0.00
4	0001	OR	WASCO	7500	PAIR	2202	\$3.86	\$3.86	\$0.00	\$3.86	\$0.00
4	0007	WA	COLUMBIA	6500	PAIR	2320	\$3.88	\$3.88	\$0.00	\$3.88	\$0.00
4	0032	ID	BOISE	8400	MIX	2400	\$4.17	\$4.17	\$0.00	\$4.17	\$0.00
4	0071	WA	FERRY	4000	AUMS		\$5.00	\$5.00	\$0.00	\$5.00	\$0.00
4	0002	WA	ASOTIN	3500	AUMS		\$5.00	\$5.00	\$0.00	\$5.00	\$0.00
4	0002	OR	MORROW	3000	PAIR	975	\$5.13	\$5.13	\$0.00	\$5.13	\$0.00
4	0008	OR	SHERMAN	1000	AUMS		\$6.50	\$6.50	\$0.00	\$6.50	\$0.00
4	0019	OR	KLAMATH	7959	COW	800	\$7.00	\$7.00	\$0.00	\$7.00	\$0.00
4	0006	ID	BOUNDARY	395	PAIR	200	\$7.00	\$7.00	\$0.00	\$7.00	\$0.00
4	0019	OR	KLAMATH	7959	COW	800	\$7.00	\$7.00	\$0.00	\$7.00	\$0.00
4	081030033	CO	RIO BLANCO	13000	PAIR	4200	\$7.00	\$7.00	\$0.00	\$7.00	\$0.00
4	0018	OR	KLAMATH	4595	COW	480	\$7.50	\$7.50	\$0.00	\$7.50	\$0.00
4	0037	OR	LAKE	2225	PAIR	1200	\$7.92	\$7.92	\$0.00	\$7.92	\$0.00
4	0002	ID	ELMORE	1500	PAIR	600	\$8.00	\$8.00	\$0.00	\$8.00	\$0.00
4	0020	WA	ASOTIN	1500	COW		\$8.00	\$8.00	\$0.00	\$8.00	\$0.00
4	0008	ID	GOODING		PAIR	427.5	\$8.00	\$8.00	\$0.00	\$8.00	\$0.00
4	0009	OR	CROOK	10830	PAIR	400	\$8.50	\$8.50	\$0.00	\$8.50	\$0.00
4	0024	OR	MORROW	5000	AUMS		\$8.50	\$8.50	\$0.00	\$8.50	\$0.00
4	0022	CA	LASSEN	800	PAIR	295	\$13.56	\$13.56	\$0.00	\$13.56	\$0.00
4	0014	WA	ASOTIN	664	PAIR		\$10.67	\$11.00	\$0.33	\$11.00	\$0.33
4	0008	CA	MODOC	25614	AUMS		\$2.54	\$3.00	\$0.46	\$3.00	\$0.46
4	0017	ID	ELMORE	6480	PAIR	1500	\$8.50	\$9.00	\$0.50	\$9.00	\$0.50
4	490350004	UT	SALT LAKE	1800	PAIR	100	\$4.65	\$5.25	\$0.60	\$5.25	\$0.60
4	490070005	UT	CARBON	22360	PAIR	2520	\$4.59	\$5.23	\$0.64	\$5.23	\$0.64
4	490070011	UT	CARBON	10000	PAIR	1200	\$8.00	\$8.75	\$0.75	\$8.75	\$0.75
4	0062	WA	STEVENS	1000	PAIR	480	\$5.47	\$6.25	\$0.78	\$6.25	\$0.78
4	0018	OR	MORROW	32740	PAIR	6737	\$4.86	\$5.69	\$0.83	\$5.69	\$0.83
4	0006	OR	SHERMAN	1500	PAIR	240	\$0.99	\$2.08	\$1.09	\$2.08	\$1.09
4	0002	OR	WALLOWA	1030	PAIR	155	\$7.00	\$8.15	\$1.15	\$8.15	\$1.15
4	0034	OR	WALLOWA	2540	PAIR	364	\$7.00	\$8.15	\$1.15	\$8.15	\$1.15
4	0007	OR	WALLOWA	4299	PAIR	765	\$7.00	\$8.15	\$1.15	\$8.15	\$1.15
4	0016	OR	UNION	260	HORSES	40	\$7.00	\$8.15	\$1.15	\$8.15	\$1.15
4	0032	OR	WALLOWA	3340	AUMS	525	\$7.00	\$8.15	\$1.15	\$8.15	\$1.15
4	0022	OR	WALLOWA	10778	PAIR	1785	\$7.00	\$8.15	\$1.15	\$8.15	\$1.15
4	0018	OR	UNION	1150	PAIR	205	\$7.00	\$8.15	\$1.15	\$8.15	\$1.15
4	0026	OR	WALLOWA	13400	PAIR	2435	\$7.00	\$8.15	\$1.15	\$8.15	\$1.15
4	0026	OR	WALLOWA	13401	PAIR	2435	\$7.00	\$8.15	\$1.15	\$8.15	\$1.15
4	0015	OR	WALLOWA	12817	PAIR	1760	\$6.70	\$8.15	\$1.45	\$8.15	\$1.45

410029	OR	WALLOWA	21297	PAIR	2625	\$6.65	\$8.15	\$1.50	\$8.15	\$1.50
410020	OR	KLAMATH	2625	PAIR		\$7.00	\$8.50	\$1.50	\$8.50	\$1.50
410008	OR	WHEELER	57059	PAIR	22400	\$7.00	\$8.50	\$1.50	\$8.50	\$1.50
410007	OR	UMATILLA	2945	PAIR	296	\$7.00	\$8.50	\$1.50	\$8.50	\$1.50
410100	ID	IDAHO		PAIR		\$7.00	\$8.50	\$1.50	\$8.50	\$1.50
410024	OR	WHEELER	6062	COW		\$7.50	\$9.00	\$1.50	\$9.00	\$1.50
410019	ID	ADAMS	1200	PAIR	2025	\$9.00	\$10.50	\$1.50	\$10.50	\$1.50
410024	ID	BENEWAH	841	PAIR	750	\$3.48	\$5.00	\$1.52	\$5.00	\$1.52
41560230014	WY	LINCOLN	33979	PAIR	675	\$4.78	\$6.41	\$1.63	\$6.41	\$1.63
41560370023	WY	SWEETWATER	37700	PAIR	3340	\$3.29	\$4.94	\$1.65	\$4.94	\$1.65
410030	OR	WALLOWA	3215	PAIR	1490	\$6.40	\$8.15	\$1.75	\$8.15	\$1.75
410005	OR	UNION	4965	PAIR	500	\$6.40	\$8.15	\$1.75	\$8.15	\$1.75
410004	OR	WALLOWA	4208	PAIR	606	\$6.30	\$8.15	\$1.85	\$8.15	\$1.85
410015	OR	UMATILLA	7404	COW	1090	\$6.24	\$8.15	\$1.91	\$8.15	\$1.91
410021+	WA	COLUMBIA	11000	PAIR		\$5.00	\$7.00	\$2.00	\$7.00	\$2.00
41490030009	UT	BOX ELDER		COW	1000	\$10.00	\$12.00	\$2.00	\$12.00	\$2.00
410013	ID	BEAR LAKE		PAIR		\$10.00	\$12.00	\$2.00	\$12.00	\$2.00
410012	ID	CUSTER	320	PAIR	400	\$10.00	\$12.00	\$2.00	\$12.00	\$2.00
410025	ID	BANNOCK	1280	PAIR	325	\$10.00	\$12.00	\$2.00	\$12.00	\$2.00
410023	OR	MORROW	2400	AUMS		\$10.50	\$12.50	\$2.00	\$12.50	\$2.00
410023	OR	WASCO	10000	PAIR	4200	\$4.37	\$6.43	\$2.06	\$6.43	\$2.06
410003	OR	JEFFERSON	17240	PAIR	7000	\$7.14	\$9.29	\$2.15	\$9.29	\$2.15
410018	OR	WALLOWA	5570	PAIR	850	\$6.00	\$8.15	\$2.15	\$8.15	\$2.15
410003	WA	COLUMBIA	1460	PAIR	364	\$6.00	\$8.15	\$2.15	\$8.15	\$2.15
410010	WA	GARFIELD	1080	AUMS	364	\$5.94	\$8.15	\$2.21	\$8.15	\$2.21
410003	OR	GRANT/UM	3715	PAIR	952	\$5.25	\$7.50	\$2.25	\$7.50	\$2.25
410071	OR	GRANT	1344	PAIR	490	\$5.25	\$7.50	\$2.25	\$7.50	\$2.25
410055	OR	GRANT	2632	PAIR	231	\$5.25	\$7.50	\$2.25	\$7.50	\$2.25
410079	OR	GRANT	3200	PAIR		\$5.25	\$7.50	\$2.25	\$7.50	\$2.25
410052	OR	GRANT	1970	PAIR	938	\$5.25	\$7.50	\$2.25	\$7.50	\$2.25
410018	OR	UMATILLA	4046	PAIR	671	\$5.25	\$7.50	\$2.25	\$7.50	\$2.25
410042	OR	UMATILLA	4907	PAIR	2635	\$5.25	\$7.50	\$2.25	\$7.50	\$2.25
410064	OR	GRANT	2844	PAIR	1239	\$5.25	\$7.50	\$2.25	\$7.50	\$2.25
410073	OR	GRANT	1907	PAIR	875	\$5.25	\$7.50	\$2.25	\$7.50	\$2.25
410076	OR	GRANT	1150	PAIR	220	\$5.25	\$7.50	\$2.25	\$7.50	\$2.25
410038	OR	JACKSON	7500	PAIR	1575	\$7.62	\$10.16	\$2.54	\$10.16	\$2.54
410054	OR	UNION	32545	PAIR	3167	\$5.57	\$8.15	\$2.58	\$8.15	\$2.58
410046	OR	UNION/WA	18641	AUMS		\$5.10	\$7.70	\$2.60	\$7.70	\$2.60
410041	OR	UNION	10308	PAIR	1260	\$5.44	\$8.15	\$2.71	\$8.15	\$2.71
410014	OR	UNION	11241	PAIR	1155	\$5.35	\$8.15	\$2.80	\$8.15	\$2.80
410008	PR	JEFFERSON	13000	PAIR		\$7.00	\$10.00	\$3.00	\$10.00	\$3.00
410044	ID	BOISE		PAIR		\$7.50	\$10.50	\$3.00	\$10.50	\$3.00
4108081NEW	CO	MOFFAT	1500	PAIR	300	\$9.00	\$12.00	\$3.00	\$12.00	\$3.00
410054	OR	UNION	8216	PAIR	814	\$5.00	\$8.15	\$3.15	\$8.15	\$3.15
41490490011	UT	UTAH	8600	PAIR	1250	\$2.60	\$5.68	\$3.28	\$5.68	\$3.28
410003	OR	UNION		AUMS		\$4.85	\$8.15	\$3.30	\$8.15	\$3.30
410001	OR	HARNEY	220	PAIR	50	\$8.00	\$12.00	\$4.00	\$12.00	\$4.00
41490030031	UT	BOX ELDER	1800	PAIR	1200	\$10.00	\$14.00	\$4.00	\$14.00	\$4.00
410067	WA	STEVENS	1340	AUMS		\$4.50	\$9.00	\$4.50	\$9.00	\$4.50
41490430027	UT	SUMMIT	5760	PAIR	600	\$5.67	\$11.67	\$6.00	\$11.67	\$6.00
410002	ID	ADA	4600	PAIR	300	\$8.33	\$16.33	\$8.00	\$16.33	\$8.00
TOTAL:			714145	TOTAL:		142738.5	AVE:	\$6.39	AVE:	\$7.65
105							AVE:	\$1.26	AVE:	\$7.62
							AVE:	\$1.23		

GOVERNMENTAL RENTAL RATES
FEDERAL GRAZING STUDY UPDATE
Lau, Mitchell & Assoc., 3/92
PRICING AREA 4

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
4	NEW	OR	KLAMATH	3130				\$5.50		\$5.50	
4	0030	OR	SISKIYOU	2075	PAIR		\$14.56	\$6.00	(\$8.56)	\$6.00	(\$8.56)
4	490510003	UT	WASATCH	7500		300	\$5.31	\$3.75	(\$1.56)	\$3.75	(\$1.56)
4	0024	WA	OKANOGA	279	PAIR		\$6.50	\$5.58	(\$0.92)	\$5.58	(\$0.92)
4	0009	WA	YAKIMA	16957	PAIR	2250	\$6.67	\$5.79	(\$0.88)	\$5.79	(\$0.88)
4	1,2,4	ID	BINGHAM				\$7.62	\$7.35	(\$0.27)	\$7.35	(\$0.27)
4	0014	CA	MODOC	5500			\$6.55	\$6.55	\$0.00	\$6.55	\$0.00
4	0024	CA	LASSEN				\$1.86	\$1.97	\$0.11	\$1.97	\$0.11
4	NEW	OR	HARNEY		AUMS		\$3.70	\$4.00	\$0.30	\$4.00	\$0.30
4	NEW	WA	FERRY		AUMS	93000	\$5.50	\$6.00	\$0.50	\$6.00	\$0.50
4	NEW	OR	UK		AUMS		\$3.00	\$3.96	\$0.96	\$3.96	\$0.96
4	NEW	OR	UMATILLA		AUMS	4000	\$9.00	\$10.00	\$1.00	\$10.00	\$1.00
4	0034	OR	MORROW	20507	PAIR	1391	\$18.00	\$19.28	\$1.28	\$19.28	\$1.28
4	NEW	NV	ELKO		PAIR	2800	\$3.00	\$4.39	\$1.39	\$4.39	\$1.39
4	NEW	UT	DUCHESNE			2045	\$3.18	\$6.50	\$3.32	\$6.50	\$3.32
4	0035	OR	MORROW	21539	PAIR	2190	\$15.00	\$18.32	\$3.32	\$18.32	\$3.32
4	0056	OR	UMATILLA	10000	PAIR		\$4.00	\$8.00	\$4.00	\$8.00	\$4.00
4	NEW	CA	MORROW	42046	AUMS	66936	\$13.04	\$18.69	\$5.65	\$18.69	\$5.65
TOTAL:				18	TOTAL:		139533	TOTAL:		174912	AVE: \$7.44
								AVE:		\$7.87	\$0.43
								AVE:		\$7.87	\$0.43



Price Area 5

Physical Description

Price Area 5 includes a portion of southern New Mexico, all of Arizona, all of Nevada (except Washoe and Elko Counties which are in Price Area 4), and the seven counties in southwestern Utah, including Tootle, Juab, Millard, Beaver, Iron, Washington, and Kane Counties, and the five southeastern desert counties of California. This pricing area is comprised essentially of the high and low desert country of the west. Annual precipitation throughout this area is generally less than eight inches, with the majority of it in the form of summer thundershowers. The northern portions of the area get some periodic winter snows. Temperatures range from below freezing in the winter to well above 120 degrees Fahrenheit in the summer. The carrying capacity of the native range in this area is among the worst in the United States, with more than 160 acres often required to support one cow for one month. Grazing in this area is generally during the spring, summer, and fall.

Public Rangeland Data

Considerable data regarding the public rangelands within Price Area 5 is provided by Tables MC-5-1 and MC-5-2, Pages 194 and 195, Volume I of the October 1983 report.

Of the 107,187,556 gross acres of public rangelands (almost 35 percent of the total) none are in NGL, 25 percent is NF and 75 percent, or over 80,000,000 acres of BLM. The average stocking rate of slightly over 13 acres per AUM is one of the highest of any of the price areas.

Valuation

Following is a summary of the updated transaction data accumulated for this price area.

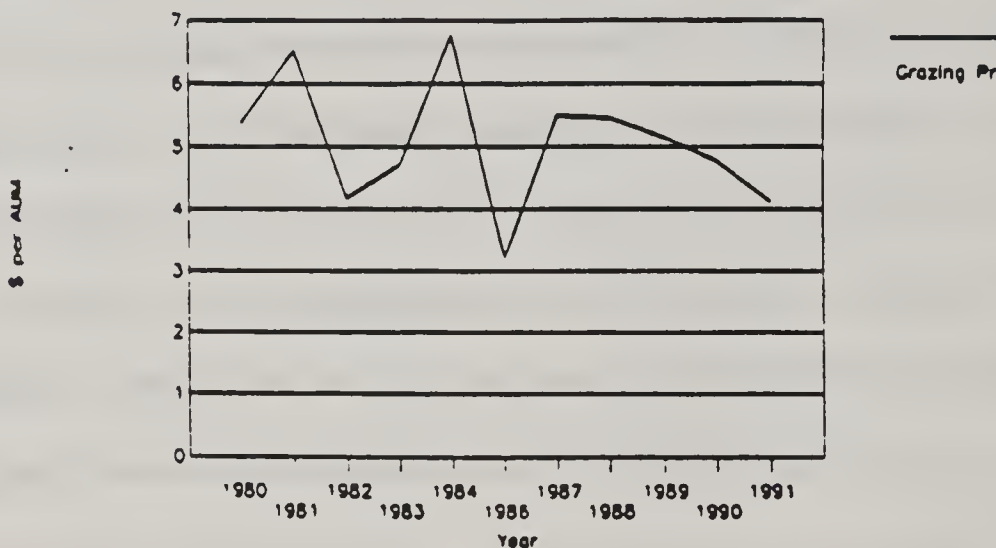
The McGregor Range in New Mexico (in the extreme southeast portion of Price Area 5) is described in the previous report. The grazing leases are on a bid basis, however, the 1983-84 method of bidding has been changed from sealed bids to a current open, more auction type, bid situation. Only 22,259 AUMs were leased in 1991, as compared to 32,400 in 1983-84. The most current average bid price was \$4.13 per AUM with a range from \$4.00 to \$4.85. The graph on the following page depicts the variations that have occurred over the past several years.

The 1991 rate is 39.1 percent less than the average of \$6.78 per AUM applicable in 1983-84. The regulations and restrictions, as noted in the previous report, still apply, except the contracts are now for nine months (October to June).

Apparently there are two primary reasons for current rates at nearly 40 percent less than eight years ago. One is that potential bidders or lessees understand the livestock watering system is deteriorating and they are at some risk of having adequate water during the entire grazing season, although the BLM provides a water maintenance crew. Probably the second reason has the most influence. That is, a drouthy period existed at the earlier dates, 1982-84, thus creating competition for any existing grass. The most recent lower rates reflect an era of good precipitation and thus less competition. There is also the possibility the new bidding system has not accomplished the anticipated result of higher prices.

MCGREGOR RANGE

Grazing Bids, 1980-1991



The limited private lease data on the following page shows an average price change of plus \$0.61 with a range from 0 to up \$2.67 with four of the six leases showing no change. The verified leases show a rental range from \$3.50 to \$15.00 in 1991.

The governmental rental rate shows an average increase of \$2.10, with a range from minus \$2.65 to a plus \$5.71. The verified leases show a rental range in 1991 of \$4.13 to \$15.56.

Lease data obtained from a qualified and experienced Nevada appraiser indicates that grazing rates in northwestern Nevada have been stable between 1980 and 1990. He reports that grazing conditions have been adversely affected by unusually dry weather during the past four years.

Private land lease data was obtained from the Phoenix office of the Bureau of Indian Affairs. This data has been gathered to be used for evidence in litigation concerning grazing rates on tribal lands which are quite comparable to surrounding federal lands. The 79 leases reported in a 1985 appraisal showed an average rate of \$4.92 per AUM. The 21 leases reported in a 1988 study indicates an average rate of \$4.53 per AUM, a downward amount of \$0.39. The leased properties varied from 100 percent public land to 100 percent private land. However, it should be noted that this study is now three to four years old and that during the ensuing period, cattle prices have been up substantially. Therefore, this data would suggest a rate of around \$5.00 to \$5.50 per HDMO-PRMO, or with no change from the October 1983 report.

Limited lease information could be re-verified from the 1983 data. Rent rates obtained from other reliable sources produced conflicting indications. Rates at McGregor Range were lower in 1991 than in 1983. No NASS data is available for Nevada or Arizona and the New Mexico data from that source indicated a \$2.08 per AUM decline between 1983 and 1981.

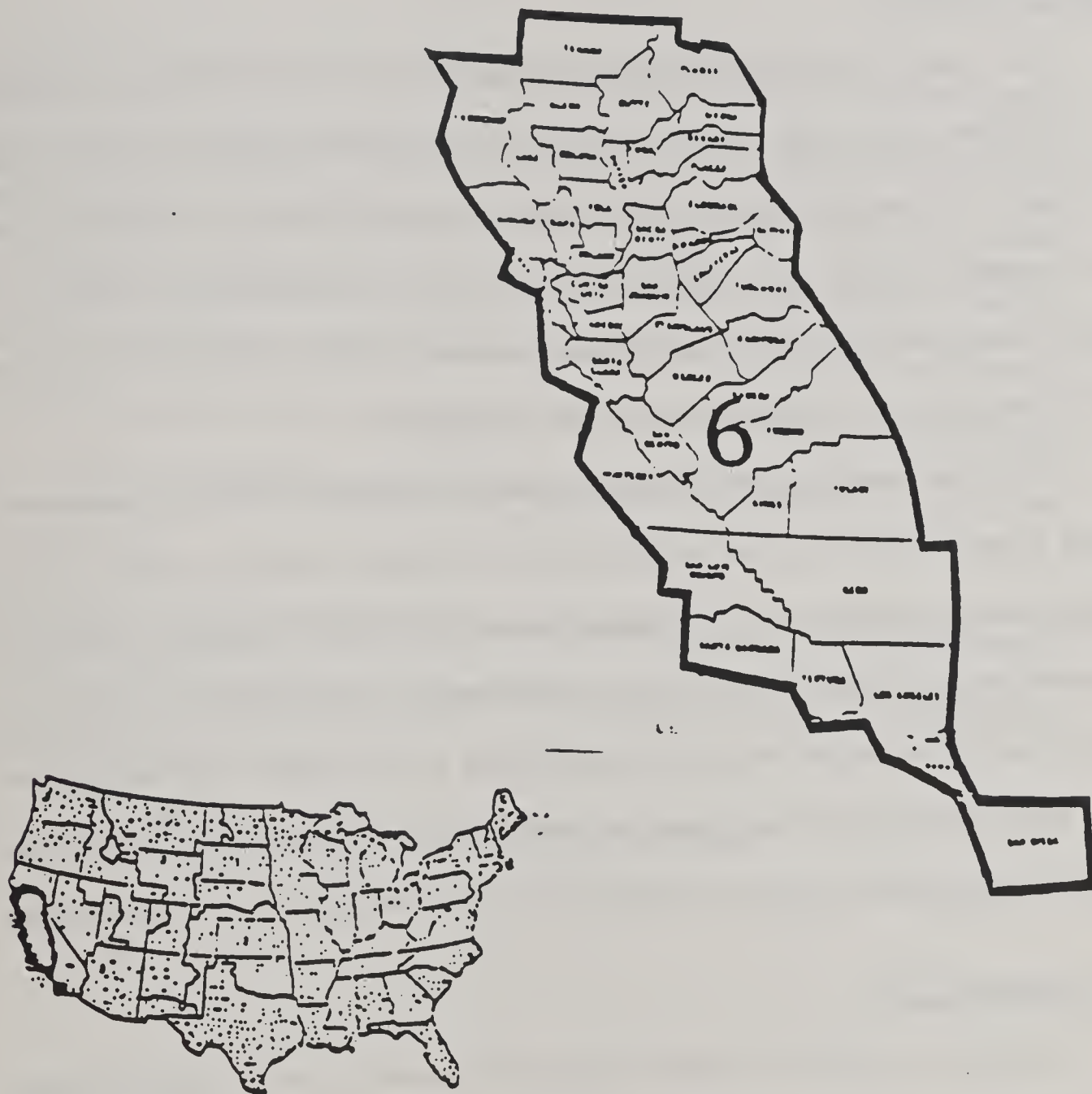
Considering the limited data and conflicting indications, no change is justified in Price Area 5. The private land lease rate of \$5.50 per HDMO-PRMO is applicable to the January 1, 1992 date of value.

PRIVATE GRAZING LEASE RATES-MATURE CATTLE
FEDERAL GRAZING STUDY UPDATE
LAU, MITCHELL & ASSOC., 3/92
PRICING AREA 5

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
5	0026	NV	HUMBOLDT	183277	PAIR	24000	\$3.54	\$3.54	\$0.00	\$3.54	\$0.00
5	350290050	NM	LUNA	23680	PAIR	4260	\$6.90	\$6.90	\$0.00	\$6.90	\$0.00
5	490210029	UT	IRON	1850	PAIR	440	\$12.61	\$12.61	\$0.00	\$12.61	\$0.00
5	0013	SD	MONO	1240	AUMS		\$15.00	\$15.00	\$0.00	\$15.00	\$0.00
5	NEW	NV	ALL	1500000	AUMS	75000	\$2.50	\$3.50	\$1.00	\$3.50	\$1.00
5	35023NEW	NM	HIDALGO	192000	PAIR	42000	\$5.33	\$8.00	\$2.67	\$8.00	\$2.67
TOTAL:				TOTAL:		TOTAL:	AVE:	AVE:	AVE:	AVE:	AVE:
6				1718953		145700	\$7.65	\$8.26	\$0.61	\$8.26	\$0.61

GOVERNMENTAL RENTAL RATES
FEDERAL GRAZING STUDY UPDATE
Lau, Mitchell & Assoc., 3/92
PRICING AREA 5

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
5	NEW	NV	WHITE PINE		AUMS	5697		\$10.00		\$10.00	
5	NONE	NM	OTERO	271000	PAIR	22259	\$6.78	\$4.13	(\$2.65)	\$4.13	(\$2.65)
5	NEW	UT	MILLARD	10000	PAIR	1000	\$5.50	\$6.25	\$0.75	\$6.25	\$0.75
5	NEW	NV	UK		AUMS		\$3.75	\$5.00	\$1.25	\$5.00	\$1.25
5	0019	CA	INYO	40146			\$3.79	\$5.46	\$1.67	\$5.46	\$1.67
5	0021	CA	INYO	32690			\$3.79	\$5.46	\$1.67	\$5.46	\$1.67
5	0023	CA	INYO	27096			\$3.79	\$5.46	\$1.67	\$5.46	\$1.67
5	490450001	UT	TOOELE	17600		5600	\$9.60	\$14.29	\$4.69	\$14.29	\$4.69
5	0017	CA	MONO				\$9.65	\$15.56	\$5.71	\$15.56	\$5.71
TOTAL:				TOTAL:		TOTAL:	AVE:	AVE:	AVE:	AVE:	AVE:
9				398532		34556	\$5.66	\$7.96	\$2.10	\$7.96	\$2.10



PRICING AREA 6

6

Price Area 6

Physical Description --

Price Area 6 is comprised of the Sacramento and San Joaquin Valleys and coastal area of California south of the timbered northerly portion of the state that is associated with Price Area 4. The eastern boundary of this pricing area approximates the east slope of the Sierra Nevada Mountains extending south to include Kern, Santa Barbara, Ventura, Los Angeles, Orange and San Diego Counties in the southwest portion of California. It includes -- several provinces of the Mediterranean Division ecoregion.

The climate conditions within this pricing area are generally quite mild year-round. Grazing generally occurs in the foothills above the highly productive valley bottoms. Although grazing could occur in most areas on a year-round basis, it generally occurs from December through September in the eastern foothill areas, with February through May the season of use in the western foothills and coastal areas of Price Area 6. This is due to the severe drying that occurs in the September through November period and resultant fire hazard, as well as general drop in the productivity of the native range in the fall of the year.

Public Rangeland Data

Tables MC-6-1 and MC-6-2, Pages 208 and 209, Volume I of the October 1983 report present considerable data regarding the public rangelands within Price Area 6. The gross acreage of 12,464,548 acres, representing four percent of all public rangelands within the western 17 states, is comprised of 81 percent NF and 19 percent BLM. The average stocking rate of 21.44 acres per AUM represents the lowest or poorest grazing of any of the six price areas.

Valuation

Following is a summary of the updated transaction data accumulated for this price area.

The 10 observations of leases including private land provide a wide range of prices being paid in 1991. However, the change averages only \$1.16 as an upward trend with only one observation less than in 1983, three suggesting no change and six denoting an upward trend. The governmental lease data (15 observations) is mostly Army Engineer's data for 1991 rates with limited data in 1983 to assess the changes. Nevertheless, the average rates have apparently increased about \$1.86 per AUM. The reported figure in 1983 was \$6.75.

The NASS data shows the State of California rates to be depressed in the amount of \$0.74 since 1983.

The opinions from 11 knowledgeable sources indicate prices to be about the same.

Considering the above data, the appropriate change is plus \$1.25. The updated private land lease rate is therefore:

$$\text{\$6.75 plus \$1.25} = \text{\$8.00 per HDMO-PRMO}$$

PRIVATE GRAZING LEASE RATES-MATURE CATTLE
FEDERAL GRAZING STUDY UPDATE
LAU, MITCHELL & ASSOC., 3/92
PRICING AREA 6

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
6	0002	CA	PLUMAS		AUMS		\$7.41	\$4.00	(\$3.41)	\$4.00	(\$3.41)
6	0029	CA	TEHAMA	2000	COW	800	\$6.50	\$6.50	\$0.00	\$6.50	\$0.00
6	0006	CA	TEHAMA	3354	PAIR	1207	\$9.94	\$9.94	\$0.00	\$9.94	\$0.00
6	0057	CA	KERN	8108	PAIR	2027	\$24.00	\$24.00	\$0.00	\$24.00	\$0.00
6	0026	CA	SAN DIEGO	25000	COWS		\$4.00	\$4.79	\$0.79	\$4.79	\$0.79
6	0070	CA	FRESNO	11062	AUMS		\$0.95	\$2.10	\$1.15	\$2.10	\$1.15
6	0013	CA	PLUMAS	18418	PAIR	360	\$2.92	\$4.15	\$1.23	\$4.15	\$1.23
6	0005	CA	SIERRA	10300	PAIR	1749	\$9.72	\$11.32	\$1.60	\$11.32	\$1.60
6	0091	CA	SANTA BAR	2500	PAIR	1320	\$7.58	\$10.83	\$3.25	\$10.83	\$3.25
6	0006	CA	KINGS	5980	PAIR	855	\$8.75	\$15.74	\$6.99	\$15.74	\$6.99
TOTAL:				10	TOTAL:		86722	TOTAL:	8318	AVE:	\$8.18
								AVE:	\$9.34	AVE:	\$1.16
								AVE:	\$9.34	AVE:	\$1.16

GOVERNMENTAL RENTAL RATES
FEDERAL GRAZING STUDY UPDATE
Lau, Mitchell & Assoc., 3/92
PRICING AREA 6

AREA	DATA NO	STATE	COUNTY	ACRES	LIVESTOCK		PRICE			ADJUSTED	
					TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE
6	NEW	CA	GLENN	880	PAIR	450		\$21.00		\$21.00	
6	NEW	CA	MONTEREY	6700		540		\$8.33		\$8.33	
6	NEW	CA	TULARE	920	PAIR	600		\$12.24		\$12.24	
6	NEW	CA	YUBA	1200	PAIR	800		\$17.25		\$17.25	
6	NEW	CA	MONTEREY	4400	PAIR	1650		\$12.52		\$12.52	
6	NEW	CA	SOLANO	472	PAIR	430		\$25.58		\$25.58	
6	NEW	CA	MONTEREY	8800	SHEEP	2100		\$14.67		\$14.67	
6	NEW	CA	CALAVERA	1580	PAIR	1030		\$17.03		\$17.03	
6	NEW	CA	MONTEREY	7000	PAIR	1200		\$7.58		\$7.58	
6	NEW	CA	UK	7100	PAIR	2000		\$25.76		\$25.76	
6	NEW	CA	UK	162		138	\$12.03	\$4.38	(\$7.65)	\$4.38	(\$7.65)
6	NEW	CA	CONTRA C	6095		7083	\$18.06	\$12.49	(\$5.57)	\$12.49	(\$5.57)
6	NEW	CA	MONTEREY	80000	PAIR	35000	\$7.10	\$4.35	(\$2.75)	\$4.35	(\$2.75)
6	0047	CA	SANDIEGO	7630	PAIR	3200	\$6.59	\$10.30	\$3.71	\$4.35	(\$2.24)
6	NEW	CA	UK		SHEEP		\$14.17	\$14.17	\$0.00	\$14.17	
TOTAL:				15	TOTAL:		132939	TOTAL:	56221	AVE:	\$11.59
								AVE:	\$13.84	AVE:	\$2.25
								AVE:	\$13.45	AVE:	\$1.86

Yearling Cattle

Valuation - Yearling Cattle

As a part of the updated rent study, 27 transactions regarding specific information on rates being paid for grazing by yearling cattle were noted. These all involved private land. The average amount of change (1983-91) ranged from a minus \$0.46 per head in Price Area 2 to a plus \$1.58 in Price Area 6. Westwide the averages were up \$0.40. The most observations in any one pricing area were 12 in Price Area 3 (where the average change was plus \$0.04) however, the number of observations then dropped to only 5, 4, 4, 2 and 0 in the other areas.

Due to this limited and somewhat contradictory data, it was determined that the most appropriate method of estimating the updated lease rate for yearlings was to apply the same ratio of lease rate of yearlings to lease rate of mature cattle that existed in the 1983 report. At that earlier date, 1,144 observations were available, the ratios are well documented, and therefore application of those ratios is considered the best method, especially with the reliability given the updated mature cattle grazing rates.

Price Area	1992 Private Land Lease Rate - Mature Cattle	Ratio from 1983 Report	1992 Private Land Lease Rate - Yearlings (Rd)
1	\$12.00	0.75	\$ 9.00
2	\$ 7.50	0.90	\$ 6.75
3	\$ 9.00	0.78	\$ 7.00
4	\$ 7.50	0.91	\$ 6.80
5	\$ 5.50	1.00	\$ 5.50
6	\$ 8.00	0.70	\$ 5.60

PRIVATE GRAZING LEASE RATES - YEARLING CATTLE
FEDERAL GRAZING STUDY UPDATE
LAU, MITCHELL & ASSOCIATES, 3/92
WESTWIDE

LIVESTOCK							PRICE			ADJUSTED			
AREA	DATA NO	STATE	COUNTY	ACRES	TYPE	CAPACITY	1983	1991	\$ CHANGE	1991 PRICE	\$ CHANGE		
	460330003	SD	CUSTER	320	YEARLING	420	\$5.60	\$5.71	\$0.11	\$5.71	\$0.11		
	460810009	SD	LAWRENCE	300	YEARLING	150	\$8.00	\$8.00	\$0.00	\$8.00	\$0.00		
	56027NEW	WY	NIOBRARA	320	YEARLING	80	\$9.00	\$10.00	\$1.00	\$10.00	\$1.00		
	46093NEW	SD	MEADE	2000	YEARLING	816		\$12.25		\$12.25			
1	0009	ND	RAMSON	340	YEARLING		\$14.00	\$14.00	\$0.00	\$14.00	\$0.00		
2	201290023	KS	MORTON	1000	YEARLING	500	\$5.50	\$5.50	\$0.00	\$5.50	\$0.00		
2	350590118	NM	UNION	17842	YEARLING	9000	\$7.78	\$5.95	(\$1.83)	\$5.95	(\$1.83)		
2	080250012	CO	CROWLEY	23783	YEARLING	10977	\$9.11	\$7.74	(\$1.37)	\$7.44	(\$1.67)		
2	350210014	NM	HARDING	3580	YEARLING	1434	\$7.50	\$9.17	\$1.67	\$9.17	\$1.67		
3	56007NEW	WY	CARBON	10000	YEARLING	1650	\$3.14	\$4.44	\$1.30	\$4.44	\$1.30		
3	350390003	NM	RIO ARriba	16000	YEARLING	6000	\$6.00	\$7.00	\$1.00	\$7.00	\$1.00		
3	08007NEW	CO	ARCHULETA		YEARLING		\$7.00	\$7.00	\$0.00	\$7.00	\$0.00		
3	350470013	NM	SAN MIGUEL	2500	YEARLING	725	\$6.00	\$7.50	\$1.50	\$7.50	\$1.50		
3	560010003	WY	ALBANY	12500	YEARLING	4000	\$7.00	\$7.50	\$0.50	\$7.50	\$0.50		
3	560050004	WY	CAMPBELL	46384	YEARLING	13920	\$7.68	\$7.68	\$0.00	\$7.68	\$0.00		
3	0049	MT	CHOUTEAU	2000	YEARLING	1500	\$8.00	\$8.00	\$0.00	\$8.00	\$0.00		
3	080910011	CO	OURAY	5500	YEARLING	3400	\$16.67	\$8.50	(\$8.17)	\$8.50	(\$8.17)		
3	0051	MT	MADISON	25000	YEARLING	19250	\$5.19	\$9.00	\$3.81	\$9.00	\$3.81		
3	080670014	CO	LaPLATA	640	YEARLING	250	\$10.00	\$9.90	(\$0.10)	\$10.00	\$0.00		
3	30095NEW	MT	STILLWATER	31000	YEARLING	5200		\$10.00		\$10.00	\$0.00		
3	080270006	CO	CUSTER	860	YEARLING		\$10.58	\$18.77	\$8.19	\$11.25	\$0.58		
4	0020	ID	ADAMS	1000	YEARLING	300	\$3.67	\$3.67	\$0.00	\$3.67	\$0.00		
4	0020	ID	CUSTER	1280	YEARLING	800	\$4.37	\$4.37	\$0.00	\$4.37	\$0.00		
4	0093	WA	OKANOGA	3200	YEARLING		\$5.00	\$6.00	\$1.00	\$6.00	\$1.00		
4	0008	ID	BUTTE	700	YEARLING	1125	\$9.60	\$9.60	\$0.00	\$9.60	\$0.00		
6	0005	CA	MARIPOSA	13000	YEARLING	26000	\$5.98	\$6.50	\$0.52	\$6.50	\$0.52		
6	0046	CA	KERN	119450	YEARLING	8975	\$11.29	\$13.93	\$2.64	\$13.93	\$2.64		
TOTAL:							TOTAL:	TOTAL:	AVE:	AVE:	AVE:	AVE:	AVE:
27							341499	117572	\$7.75	\$8.43	\$0.68	\$8.15	\$0.40

FINAL VALUE ESTIMATE

In the preceding analysis, the private land lease rate as of January 1, 1992 is estimated as follows:

<u>Price Area</u>	<u>Mature Cattle & Horses (over 18 month of age)</u>	<u>Yearling Cattle (under 18 months of age)</u>
1	\$12.00	\$ 9.00
2	\$ 7.50	\$ 6.75
3	\$ 9.00	\$ 7.00
4	\$ 7.50	\$ 6.80
5	\$ 5.50	\$ 5.50
6	\$ 8.00	\$ 5.60

As previously discussed, the Mass Data Analysis summarized in the October 1983 appraisal on Pages 133 through 136 concludes that a five percent downward adjustment of the private lease rate results in fair market value for grazing on public rangelands.

Additionally, since the BLM and FS require payment in advance, the analysis on Pages 110 through 112 concludes that an additional 10 percent discount is needed to estimate the fair market value of grazing on public rangelands, advance payment. The following tables summarize the values.

Mature Cattle & Horses
(over 18 months of age)
HDMO-PRMO

Price Area	Private Land Lease Rate	Fair Market Value of Grazing on Public Land	Fair Market Value Advance Payment
1	\$12.00	\$11.40	\$10.26
2	\$ 7.50	\$ 7.10	\$ 6.39
3	\$ 9.00	\$ 8.60	\$ 7.74
4	\$ 7.50	\$ 7.10	\$ 6.39
5	\$ 5.50	\$ 5.20	\$ 4.68
6	\$ 8.00	\$ 7.60	\$ 6.84

Yearling Cattle
(under 18 months of age)
HDMO-PRMO

Price Area	Private Land Lease Rate	Fair Market Value of Grazing on Public Land	Fair Market Value Advance Payment
1	\$ 9.00	\$ 8.60	\$ 7.74
2	\$ 6.75	\$ 6.40	\$ 5.76
3	\$ 7.00	\$ 6.70	\$ 6.03
4	\$ 6.80	\$ 6.50	\$ 5.85
5	\$ 5.50	\$ 5.20	\$ 4.68
6	\$ 5.60	\$ 5.30	\$ 4.77

CERTIFICATION OF VALUE

We certify that, to the best of our knowledge and belief,

- * the statements of fact contained in this report are true and correct and no important facts have been withheld.
- * the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, unbiased professional analyses, opinions, and conclusions.
- * we have no present or prospective interest in the property that is the subject of this report, and we have no interest or bias with respect to the parties involved.
- * our compensation is not contingent on an action or event resulting from the analyses, opinions, or conclusions in, or the use of, this report.
- * our analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice as promulgated by the Appraisal Standards Board of the Appraisal Foundation and in conformity with the requirements of the Code of Professional Ethics and the Uniform Standards of Professional Practice of the Appraisal Institute, as well as the Uniform Appraisal Standards for Federal Land Acquisitions.
- * the use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives. Further, we certify and agree this report shall be subject to review in conformity with the "Uniform Standards of Professional Appraisal Practice", as published by The Appraisal Foundation; and any documented finding of inadequacy shall be discussed and corrected as needed at no cost to the government.
- * as of the date of this report Robert J. Mitchell and David J. Lau have completed the requirements under the continuing education program of the Appraisal Institute.

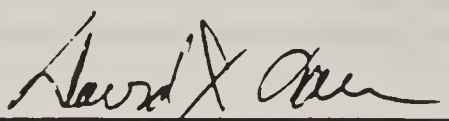
CERTIFICATION OF VALUE - CONT.

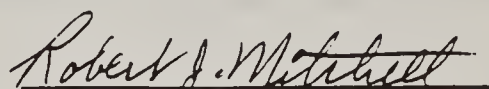
- * we are generally familiar with the appraised property which is the subject of this report and comparable transactions used in developing the estimate of value. The date of any inspection was Summer 1984, and the methods of inspection were aerial and direct.
- * no one provided significant professional assistance to the persons signing this report.

In our opinion, the cash fair market value of grazing use within the designated pricing areas, as of January 1, 1992 is:

Price Area	1/01/92 Fair Market Value of Grazing on Public Rangelands * per HDMO-PRMO	
	Mature Cattle & Horses (Over 18 months of age)	Yearling Cattle (Under 18 months of age)
1	\$10.26	\$ 7.74
2	\$ 6.39	\$ 5.76
3	\$ 7.74	\$ 6.03
4	\$ 6.39	\$ 5.85
5	\$ 4.68	\$ 4.68
6	\$ 6.85	\$ 4.77

* Advance payment.


David J. Lau, MAI


Robert J. Mitchell, MAI

WESTWIDE PRICING CONSIDERATIONS

The request to update the October 1983 appraisal ask for a westwide fair market value of grazing on public rangelands estimate.

In the October 1983 appraisal, the appraisers and reviewers concluded that the fair market value of grazing was most accurately estimated by dividing the 17 western states into six pricing areas. The lease re-verification completed on this analysis confirms this previous conclusion.

The pricing areas have unique characteristics relating to physical characteristics such as soil, topography, and vegetation; economic characteristics such as markets, livestock type, operating costs and so forth.

Since the October 1983 report, the fair market value of mature cattle grazing on private land in Price Area 1 increased \$2.00 per month while no increase is justified in Price Areas 2 and 5.

The January 1, 1992 private land lease rate value of \$5.50 in Price Area 5 goes to \$12.00 in Price Area 1 and reflects a spread in the value of the resource between the two regions in the amount of \$7.00. To estimate a uniform price for the two pricing areas by averaging, weighted averaging, or other statistical methods would produce a meaningless mathematical result.

Therefore, the appraisers do not believe that a single westwide estimate would represent a fair or equitable measure of the value of grazing on public rangelands.

QUALIFICATIONS OF DAVID J. LAU

EXPERIENCE

- 1970 to Present - Independent Fee Appraiser with offices in Salem, Oregon. Types of real property appraised throughout Oregon, Washington, and California include commercial retail, commercial office, professional office, light and heavy industrial, multi-family, farms and ranches.
- 1965 to 1970 Supervisor, Agricultural Loans, Connecticut Mutual Life Insurance Company, Hartford, Connecticut. Supervised farm lending and investment operation nationwide, reviewing appraisals and inspecting property throughout the United States.
- 1956 to 1965 Executive Vice President, State Savings & Loan, Albany, Oregon, and Mortgage Loan Appraiser for Prudential Insurance Company of America, Salem, Oregon.

CLIENTS SERVED

As an independent fee appraiser, clients served include various federal, state, county and municipal agencies, in addition to mortgage lenders, real estate investment trusts, investors, individuals and attorneys. Mr. Lau has appeared as an expert witness in various state and federal courts throughout the northwest and has also acted as an arbitrator.

A list of representative appraisal assignments, clients, and references will be provided upon request.

EDUCATION

Bachelor of Science, University of Idaho - 1956
Graduate courses, University of Hartford, Hartford Connecticut
Extensive specialized real estate appraisal education, sponsored by the American Institute of Real Estate Appraisers - 1960 to Present
Lecturer for the American Institute of Real Estate Appraisers since 1969 at various universities and conference centers throughout the United States covering a variety of appraisal subjects including the appraisal of rural property, eminent domain appraisal, and Highest and Best Use.

PROFESSIONAL AFFILIATIONS & ACTIVITIES

State Certified Appraiser
Licensed Real Estate Broker - Oregon
American Institute, member (MAI) since 1964, Currently Certified
Past Chairman - Research & Information Services Committee
Past Member - National Education and Publication Committees
Past Officer - Oregon Chapter No. 14
Charter member, Oregon Society of Farm Managers & Rural Appraisers
Past Board Member, Salem Art Association and Salem Rotary Club
Recipient of the Appraiser of the Year Award for Oregon 1990

QUALIFICATIONS OF ROBERT J. MITCHELL

Greeley, Colorado

Education

*B.S. Degree in Civil Engineering, Colorado State University, 1949.
Several Real Estate Certificate Courses, University of Colorado Extension Div., Numerous and
Continuing Appraisal Seminars.*

*Instructed: American Institute of Real Estate Appraisers Rural Properties Appraisal Course III, and
Grazing Lands and Ranches Course V; Introduction to Real Estate Appraisal & Advanced
Appraisal, University of Colorado Extension Division.*

Memberships

*The Appraisal Institute (MAI), Past President of Colorado Chapter (AIREA).
American Society of Farm Managers and Rural Appraisers - Colorado and National.
Past President of Greeley Board of Realtors.*

Professional Experience

*Nine years as an Engineer Appraiser for Federal Land Bank of Wichita.
Since 1958 - Independent Appraiser in general real estate appraisal practice, making appraisals
throughout Colorado, and portions of Nebraska, Utah, New Mexico and Wyoming.
Reviewer (1984), Fair Market Rental Value on Public Lands (USFS & BLM)
Real Estate Broker, State of Colorado
Certified Appraiser - State of Colorado, #AC01313141*

Typical Clients

*Individuals, Attorneys,
Institutions & Corporations,
Churches, School Districts,
Real Estate Developers,
University of Northern Colorado,
Public Service Company of Colorado,
North Colorado Medical Center,
Coors Brewery, Eastman Kodak Co.,
John Hancock Mutual Life Ins. Co.,
Travelers Realty Ins. Co., Oil
Companies (Texaco, Chevron, Conoco),
Northern Colo. Water Conservancy
District, Colo. River Water Conservation
District, E. I. DuPont Corp., Union
Pacific Resources, and others.*

Banks:

*All major banks of Greeley, Several
Affiliated Banks of Colo., Several
United Banks of Colo., 1st Interstate
Bank of Denver, 1st Nat'l. of
Longmont, Valley Nat'l. Bank of Arizona*

State Agencies:

*Colo., Wyo., Utah & Nebr. Dept's.
of Hwys., Colo. Division of Wildlife*

Fed. Agencies:

*Veterans Administration, General
Services Admin., Nat'l. Bureau
of Standards, Forest Service, Army
Corps of Eng'rs., Dept. of Justice,
Nat'l. Park Service, Bureau of Land
Mang., Bureau of Sport Fisheries,
IRS, FmHA, FDIC & RTC*

Municipalities:

*Greeley, Loveland, Brush, Fort
Collins, Longmont and others*

Qualified as an expert witness in several Federal, State and District Courts.

ADDENDA

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Exhibit A

STATEMENT OF ASSUMPTIONS AND LIMITING CONDITIONS

This Updated Appraisal Report is subject to the following assumptions and limiting conditions:

- 1) This appraisal (Date of Value of January 1, 1992) is an update of the appraisal of the Fair Market Rental Value of Grazing on Public Lands which has a Date of Value of October 1, 1983.
- 2) No field inspection of the subject property or the comparable lease properties was made during the preparation of this update appraisal. However, David J. Lau and Robert J. Mitchell inspected much of the property in 1984 when employed as independent reviewers of the original report.
- 3) The descriptions of the public rangelands, as presented in the original report, regarding numbers of allotments, acreages and carrying capacities may have changed slightly over the eight year period between the valuation dates, but such changes are assumed to be negligible and have no effect on the purpose of this update appraisal. Throughout this appraisal report, the term "public rangelands" is used to denote all lands administered by the BLM and the FS, regardless of administering agency, while the term "public lands" is used to denote lands administered specifically by the BLM.
- 4) The value estimates presented in this report do not represent the "site specific" fair market rental grazing value of any individual allotment. Rather, the values derived are

intended to represent a reasonable estimate of the fair market value of grazing on public rangelands, under the limitations and conditions presented.

5) Statistical methods have been employed in the sorting and refining of the comparable private lease data used in this report. The value conclusions reached by the appraisers are based primarily on a price comparison method.

6) The public rangelands data regarding the grazing use and the lands involved were prepared by field offices of the BLM and the FS, using various types of records and computerized data banks. The appraisers assume this data as being sufficiently accurate for the purposes of this appraisal.

7) Certain information, facts, and opinions have been obtained from sources considered to be reliable. It is assumed that these items are accurate and conform to the true facts.

8) Permit value is the value that is attributed to having privileges to graze livestock on public rangelands. The appraisers recognize that permit values do exist, however, it is not within their purview to decide the legal issues involved. Therefore, the appraisers have not considered permit value as a factor affecting the fair market rental value of public rangeland grazing.

9) The appraisers recognize that a significant percent of public rangelands lack legal access, however, physical access for grazing use has been assumed.

10) Certain transaction data and other information concerning private grazing leases were given with the understanding that every effort would be made to maintain its confidentiality. The appraisers assume no responsibility for this matter once the appraisal is completed and the information is no longer under their custody.

11) This updated appraisal is to be used in whole, and no fractional portion of it should be used out of context from the total report, nor is it to be construed as applicable to any property use other than the grazing of livestock, as authorized by the FS or the BLM within the 16 western states and the grazing jurisdiction of FS in Hemphill and Dallam Counties in Texas.

12) Possession of this report or a copy thereof does not carry with it the right of publication by anyone but the United States Government or its lawful assignees.

13) Appearance in or giving testimony ~~in~~ court or administrative hearings in connection with this updated appraisal will be furnished on request subject to adequate advance notice being given to the appraisers in order that required preparation and scheduling may be arranged. Charges in connection with pretrial or administrative hearings, conferences, and testimony will be made in accordance with the usual charges as specified by the appraisers.

COMMENTS FROM
INTERESTED AND AFFECTED PARTIES
ON
UPDATED GRAZING FEE REVIEW AND EVALUATION REPORT
OF THE
SECRETARIES OF AGRICULTURE AND THE INTERIOR
APRIL, 1992

Part 1 - Comments

Comments on the updated 1986 Grazing Fee Review and Report were received from the following:

National Wildlife Federation

The Public Lands Foundation

Natural Resources Defense Council

The Public Lands Council, American Farm Bureau Federation, American Sheep Industry Association, Association of National Grasslands, National Cattlemen's Association

Part 2 - Other Information (Publications)

Since the 1986 Grazing Fee Review and Evaluation Report many publications and articles have been written. This section lists publication's since 1986 written on the grazing fee issues which are not cited elsewhere in the updated fee report.

Fowler, J.M, L.A. Torrell, J.M. Witter, and R.D. Bowe, 1985, Private Land Grazing Transactions in New Mexico 1983-84. Implications for state trust land grazing fees. New Mexico State Univ. Coop. Extension Service. Report 18.

Gray, J.R., 1986, "Preview Of Appraisal Report Estimating Fair Market Rental Value Of Grazing On Public Lands (p. 384 - 242205)."

Harris, Thomas R., William O. Champney, Andrew B. Marshall, and Thomas R. MacDiarmid, 1992, "Updated Alternative Federal Grazing Fee Formulas", University of Nevada, Reno, NV

Harris, Thomas R., William O. Champney, Andrew B. Marshall, Thomas R. MacDiarmid and Shawn W. Stoddard, 1992, "Estimation of the Impacts of Grazing Fee Increases on the Economy of Humboldt County, Nevada, University of Nevada, Reno, NV

Kearl, W.G., 1986, "Critical Review And Appraisal Of U.S. Forest Service and Bureau of Land Management Grazing Fee Studies". University of Wyoming Agricultural Experiment Station Research Journal, Laramie, WY

Knutson, Ronald D., James W. Richardson, Edward G. Smith, and David P. Anderson, 1992, "Economic Impacts of Alternative Federal Grazing Fee Formulas on Representative Ranches in New Mexico, Wyoming, Montana, and Nevada", AFPC Policy Working Paper 92-4, Agricultural and Food Policy Center, Texas Agricultural Experiment Station, College Station, TX.

Nielsen, Darwin B., E. Bruce Godfrey and Frederick Obermiller, 1985, "An Evaluation of the Forest Service and Bureau of Land Management Grazing Appraisal Report", Research Report 104, Utah Agricultural Experiment Station, Utah State University, Logan, UT.

Public Lands Council, 1984. "Draft Review of Agency Appraisal Report dated July 27, 1984 Estimating Fair Market Value of Public Rangelands In The Western United States Administered By The USDA Forest Service and Bureau of Land Management", Washington, DC

Rowlands, M.E. and J.W. Smith, 1989. "Factors Affecting The Foraging Strategies Of Cattle On Brush Managed Landscapes", Society for Range Management, Abstract paper 42:165, Denver, CO

Tembo, A., 1990. "Influence Of Water Points and Range Condition On Vegetation Of The Chihuahuan Desert", Ph.D. Thesis. New Mexico State University, Las Cruces, NM

Torell, L. Allen, and Wesley Ward, 1991, "Range Livestock And Return Estimates For New Mexico, 1990", New Mexico State University Agricultural Experiment Station Research Report 659, Las Cruces, NM



Working for the Nature of Tomorrow

NATIONAL WILDLIFE FEDERATION

1400 Sixteenth Street, N.W., Washington, D.C. 20036-2266 (202) 797-6800

April 22, 1992

Robert M. Williamson
Director of Range Management
USDA Forest Service
201 14th Street, S.W.
Washington, D.C. 20090-6090

Jim Fox *JF*
Chief, Division of Rangeland Resources
USDI Bureau of Land Management
1849 C Street, N.W. Room 240
Washington, D.C. 20240

Dear Messrs. Williamson and Fox:

Thank you for the opportunity to present the views of the National Wildlife Federation (NWF) on the draft Grazing Fee Review and Evaluation Update of the 1986 Final Report (April 30, 1992). In general, we commend the Forest Service and Bureau of Land Management for updating the mass appraisal data in a thorough and professional manner. However, we are concerned about some aspects of the report which we will outline in detail below:

Fee Report Misrepresents Costs of Grazing Administration.

Figure 1.4 (p. 6) represents an arbitrary and unsubstantiated evaluation of the cost of the grazing management program in the absence of livestock grazing. The Bureau of Land Management (BLM), for example, attributed roughly \$5.6 million out of total expenditures of \$15.2 million of its 1990 range improvement expenditures to non-livestock activities. This is directly contradicted by the information provided to the Natural Resources Defense Council in 1991, which indicates that less than 3 percent of range improvement funds are spent on non-livestock improvements. It is simply incorrect to assert that 37 percent of the range improvement expenditures are attributable to non-livestock improvements. The Forest Service represents a much more realistic projection: that less than 10 percent of the range improvements are for non-livestock related improvements.

Likewise, there is no support for the assertion that BLM spends 30 percent of the *Rangeland Management* budget on non-livestock related activities. The Workload Measures in the budget justification for this appropriation include exclusively livestock-related activities, with the exception of range inventory. These Workload Measures include: grazing EISs, AMPs completed, permits administered, allotments monitored, project development, project

maintenance, and weed control. It is fallacious to assert that BLM is spending \$8.3 million for "Rangeland Management Without Livestock Grazing" when this appropriation appears to be only expended on rangeland inventory. Similarly, the Forest Service projection that 30 percent of its range management program is non-livestock related is highly questionable.

No documentation or criteria are presented in the report to validate these assertions, which we suspect are likely to be very subjective. For example, during the April 14 briefing on the draft report, it was stated that \$2 million of the BLM "Without Livestock Grazing" expenditures were for "weed control." This verbal assertion is not reflected in either the text or Figure 1.4, no information is presented as to how this figure was derived, the rationale for it, or what proportion of the weed control program benefitted livestock grazing. Given the fact that it is generally acknowledged that livestock are responsible for a great deal of the weed infestation occurring on public lands, it is remarkable that such a high level of expenditure for this program would not be attributed to livestock grazing. These unsupported assumptions regarding non-livestock expenditures serve to improperly reduce the true cost of administering livestock grazing activities on the public lands.

The presentation of "Rangeland Program Costs 'With and Without' Livestock Grazing" on page 6 also does not project what the costs of administration of an effective grazing program would be, if the BLM and Forest Service were fully implementing its program objectives. Further, it does not reflect the recent findings from the Interior Department's Inspector General that a substantial portion of BLM program budgets are being spent on administration. In other words, Figure 1.4 greatly underestimates the cost of properly administering livestock grazing on public lands. We think the matter needs to be explored further, and at a minimum the final report should enumerate the different categories of non-livestock expenditures assumed by the authors, and provide a supportable factual basis for how such values were derived.

Appraised Market Values of Public Land Lease Rates Are Substantially Discounted.

We commend the Department of the Interior and the Department of Agriculture for the thoroughly professional manner in which the mass appraisal data was updated. This information should be very helpful to policy-makers in ascertaining fair market value rental rates for public rangelands.

We do think it is important, however, that the report

emphasize the extent to which the appraised market values of public land lease rates were reduced in value compared to private land lease rates by the appraisers. To begin with, when the appraisers evaluated the private leasing rates in the western states, the range of values was reduced to "eliminate the extremes at each end of the values" (p. 14). As a result, the appraised market value was reduced 5 percent. Then the appraisers discounted the appraised market value by another 5 percent to reflect different conditions between private lands and public lands. The appraised market value is further discounted 10 percent because of the alleged disadvantage to ranchers entering into agreements that require cash in advance of use. Thus, the total discount applied to the appraised market value for public lands in each pricing area is 20 percent.

We question the appropriateness of the 10 percent discount due to the advance payment requirement for federal leases is warranted. According to Figure B.8 (p. 73), private grazing agreements may require advance payments or a mix of advance, periodic and end of season payments. But with respect to public leases, "there are..., many situations in which split billings and payment at the end of the year or season are employed." Given this fact, we are not convinced that a 10 percent downward adjustment in value is warranted for this reason.

Additional Comments on the Update:

P. 7: Figure 1.6 portrays livestock permittees' "Contributions for Range Improvements." In 1990 livestock operators contributed only \$0.14 per AUM for improvements on BLM allotments, and only \$0.22 per AUM for improvements on national forest allotments. However, these contributions do not represent actual out-of-pocket expenses attributable to permittees because permittees are eligible for tax credits for such improvements. Therefore, permittee actual costs are substantially less than the already meager contributions listed. The text should point out the extent to which permittee contributions to range improvements are eligible for tax credits.

P. 22: In the evaluation of the current formulas, updated to 1991, NWF was pleased to see the recognition of the static quality of the current PRIA formula. That "PRIA fees averaged 27 percent of the indicated market value" for the update period, demonstrates that the PRIA formula does not produce fees that are either "reasonable" or reflective of fair market value for our public rangelands.

P. 35: According to the information provided in Figure B-13,

Appendix B, only one state appears to use the PRIA formula, and even that state augments the PRIA formula receipts with private lease rates for assessing fees on state trust lands. This is contrary to the statement on page 35 which asserts that "some states us[e] the PRIA fee formula (emphasis added)." The statement on page 35 should, therefore, be deleted.

P. 35: There is no evidence to support the implication here that livestock grazing has improved the multiple use objectives of public land managers. The authors assert that:

As a management tool, grazing is used to maintain and restore plant communities. By managing the timing and deviation of livestock use, grazing helps improve grass and crop production, control erosion, recharge ground water aquifers, enhance riparian condition, and provide water for recreational, agricultural and other needs. (emphasis added)

If this kind of rhetoric must be used, it should be stated in terms of the potential results of livestock grazing. Given the fact that the BLM's own data indicates the unsatisfactory conditions which prevail on the preponderance of rangelands it manages, the above statement as worded misleads the reader into believing that the desirable results enumerated (ie., "control erosion, recharging aquifers, enhancing riparian conditions, providing water..., etc.") are actually being attained under present management conditions. Nothing could be further from the truth!

P. 47: The document updates the impacts of grazing fee formulas on base ranch budgets for the livestock industry. Text is added to point out, in the updated statistics, that "returns above all cash costs are negative for the average permittee cattle operation in South Dakota at all fee levels [including no fee]." Would it be possible to explain why this is the case? An explanation here could eliminate confusion that has been created by this table in the past.

P. 70: Figure B.5 indicating Vacant Allotment Information for the Forest Service and BLM should be modified to indicate the year in which the data were collected.

P. 75: The table in Figure B.9 appears to be inconsistent with the rest of the report, and needs revision. Figure B.9 was updated using the Input Cost Index to reflect current non-fee costs in livestock grazing. However, the Private Lease Rate represented in the figure of \$4.55 for cattle is not supported elsewhere in the report. According to Figure 2.2 on page 17, the lowest comparable

private leasing value in the western pricing areas is \$4.68. The average leasing rate, which would be one option for use in this chart, is substantially higher than \$4.68 (or, for that matter, the \$4.55 reflected as the private lease rate in Figure B.9). In addition, the "Public Costs" include the updated PRIA grazing fee as a "private lease rate." The \$3.02 should not be added to the column of "nonfee costs" since it is obviously a fee cost. This chart should be modified accordingly.

P. 76: The table indicating "Beef Cattle Marketings, Percent of Private Leases, and Percent of Combined Forest Service - BLM AUM's" is not dated, and the nature of its significance is not clear. The first column appears to be a breakdown by state of the percent of AUM's that are used by permittees with both national forest and BLM allotments. Does the second column represent the contribution to the overall state beef market from public lands AUM's? If so, this table should make that clear. What is the significance of the "Private Leases (AUMs)" column? Does this reflect the percentage of permittees who lease base property or sublease their AUMs to third parties? If so, the table should explain the information that is presented.

This concludes our comments on the draft Grazing Fee Review and Evaluation Update of the 1986 Final Report.

Sincerely,



David Alberswerth
Director
Public Lands & Energy Division



Cathy Carlson
Legislative Representative
Public Lands & Energy Division



Public Lands Foundation

P.O. Box 10403

McLean, Virginia 22102

703-790-1988

For America's Heritage

April 21, 1992

Bureau of Land Management (220)
1849 C Street NW
Washington, DC 20240

Dear Sir:

The Public Lands Foundation (PLF) appreciates the opportunity to review the 1992 update of the 1986 grazing fee report. PLF is a private, non-profit organization of retired BLM employees with a strong interest in the management of the public lands administered by BLM following the national policies established in FLPMA.

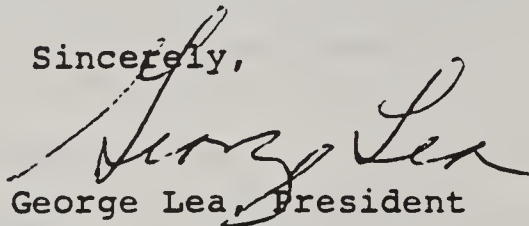
At this point we have the following comments regarding the 1992 update:

- (a) There is no need whatsoever to conduct more studies; to collect more data. The 1992 update is more than adequate at this point. This subject has been studied "to death" at considerable cost to the federal treasury over the years.
- (b) Both BLM and the Forest Service should have the same fee. Congress and the Administration must work to insist that this happens.
- (c) This entire subject is a political one. It is not an economic issue. Grazing fees are less than 5% of the operating costs of public land ranchers.
- (d) We find the data and the discussion of the cost of administering the rangeland program with and without livestock grazing to be totally inappropriate and not at all relevant to the subject of grazing fees. FLPMA embraces the national policy that the United States receive FMV for grazing use of the public lands with additional guidance in Section 401 of that Act. The cost of administering the use is not a part of this national policy nor an element of FMV. Including this information in the 1992 update only directs attention from the task at hand of establishing FMV and creates interesting but unproductive arguments as to the validity of the agencies estimates of these costs.
- (e) There is an explicit assumption in this report and the discussions surrounding grazing fees, particularly by the livestock industry and their economists and supported by the BLM and FS, that if the fee is increased a decrease in demand for public land grazing will result. As a matter of fact, there is no empirical data to support such an assumption and there should be. We believe this theory needs to be tested in a real-life circumstances on the public lands and then the results can be used in this debate.

- (f) Competitive bidding is an acceptable method of determining FMV in the U.S. Few can disagree with this fact. While it may not be an appropriate method for establishing grazing fees, it is nevertheless, a value that needs to be established and made apart of the discussion on fees. We recommend that BLM and FS establish a pilot competitive bid test soon so that in three to five years from now, when we are discussing this subject again, we will have knowledge of the impacts and the fee produced by bidding. To our knowledge only the McGregor Range in New Mexico is under competitive bid. There needs to be more pilot areas.

We look forward to the ensuing public debate on this important public policy.

Sincerely,

A handwritten signature in cursive script, appearing to read "George Lea".

George Lea, President



Natural Resources
Defense Council

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April 21, 1992

VIA FAX MACHINE

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Department of the Interior
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Washington, DC 20240

Range Management Division
USDA - Forest Service
P.O. Box 96090
Washington, DC 20090

Re: Draft Grazing Fee Study Update

Gentlemen:

Thank you for making a copy of the draft grazing fee study update available for review by the Natural Resources Defense Council (NRDC). Given the very short review period, our comments are necessarily brief.

The draft update's conclusion validates the conclusion of the fee study conducted in 1986 by the Departments of the Interior and Agriculture: the present fee formula charges a fee that is far below the fair market value of the public's forage, as determined by well-established appraisal principles and even taking into account the added costs of doing business on federal rangelands. This finding is also consistent with the conclusions of independent analysts, including the General Accounting Office (GAO). See, e.g., GAO, Rangeland Management: Current Formula Keeps Grazing Fees Low (GAO/RCED-91-185BR) (June 11, 1991); Gee, Kerry C. and Albert G. Madsen, The Cost of Subleasing Federal Grazing Privileges (Colorado State University, August, 1986). We would like to think that publication of this latest study will put an end to the debate on this particular issue.

What is more, the draft confirms that the current fee formula does not generate sufficient funds to cover the costs of the grazing programs of either the Bureau of Land Management (BLM) or the U.S. Forest Service, regardless of how those costs were calculated (see below). This finding too is consistent with other independent studies, see, e.g., GAO, Rangeland Management: Interior's Monitoring Has Fallen Short of Agency Requirements (GAO/RCED-92-51) (February 1992) (hereinafter "GAO, 1992 Monitoring Report"), as well as with numerous internal BLM documents which reveal that adequate funds are lacking for management and rehabilitation purposes, see, e.g., Wald,

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Bureau of Land Management, Dept. of Interior
Range Management Division, USDA Forest Service
April 21, 1992
Page 2

Johanna and David Alberswerth, "Our Ailing Public Rangelands -- Still Ailing: Condition Report -- 1989 (National Wildlife Federation and NRDC, October, 1989).

Despite our support for the fundamental conclusions of the draft study, we have several questions about some of the data and other information it presents. For your convenience, these questions are arranged by page number.

Page 1: The last sentence on this page ignores two salient facts: first, that on most federal rangelands, "prescribed plans," or allotment management plans, have yet to be developed; and second, that your agency in particular is required by law and regulations to permit members of the general public to "consult" regarding the contents of these plans. See, e.g., 43 U.S.C. § 1712(f); 43 CFR § 4100.0-5 (definitions). All too often in our experience BLM field offices ignore these mandates; this statement suggests the problem is systemic. In any case, you should be certain that the contents of this document conform to statutory and regulatory requirements.

Page 2: According to this page, approximately 26,900 "farmers and ranchers" graze livestock on the public lands. According to page 48 of the draft, however, there are only 23,645 operators who graze the federal rangelands. Which number is correct?

The draft also indicates that there are 931,990 beef producers in the United States. According to the National Cattlemen's Association, however, there are "more than 1 million farm and ranch operations with beef cattle," "The Beef Brief," p. 1, Vol. 1, No. 2 (Summer 1991). Which number is correct? Regardless of which of these totals is correct, it is clear why public land operators make such a small contribution to the nation's beef production or even to regional economies, as discussed below.

Page 3: Citing a 1957 study, this page asserts that public land grazing is "important both regionally and locally." In fact, the BLM's own far more recent environmental impact statements reveal how unimportant such grazing is at the regional level, as the GAO pointed out late last year. See Rangeland Management: BLM's Hot Desert Grazing Program Merits Reconsideration (GAO/RCED-92-12) (November 26, 1991). We doubt very much that

Forest Service EISs would be significantly different on this point. Any statement regarding the economic importance of grazing should, at a minimum, be consistent with agency documents.

Page 4: Comparison of Figure 1.2 in the Update and the 1986 fee study with the text at page 15 reveals a very clear relationship between the below market value grazing fee and livestock use of the public lands. According to page 15, "[t]he indicated number of beef cattle in the 16 western states ... dropped approximately 12.4 percent over the 1983 to 1990 time frame." Yet the BLM's total AUM level did not change one AUM during that period as is revealed by comparing Figure 1.2 in the update to the same figure in the 1986 study, while the Forest Service level dropped only slightly. Obviously, low fees keep cattle numbers up.

Pages 5-6: These pages present and discuss the costs of the grazing programs of both the BLM and the Forest Service. We have numerous questions about what went into the determination of such costs and submit that all such costs should be specifically identified and itemized in the final version of this study.

For example, according to Figure 1.3, the BLM's appropriation for range improvements totalled \$15,250,000 in 1990. Yet, according to information supplied by BLM in a letter dated September 28, 1990, responding to a Freedom of Information Act request, \$9,404,000 was appropriated in FY 1990, of which \$8,900,000 was expended. Moreover, note 2 at page 5 asserts that "range improvement expenditures benefit wildlife, riparian areas, watershed, etc.," "[i]n addition to livestock grazing." In fact, the data contained in BLM's September 28, 1990, letter revealed that, over the preceding ten year period, 96.5% of the "range betterment" funds that can be accounted for on a project-specific basis were spent chiefly to benefit livestock, with a mere 2.66% going to benefit wildlife and watershed. Clearly, the range improvement information in the update is suspect.

We also question the category identified as "grazing management." Exactly what activities were included in this category and what amounts of monies were assigned to each activity? Apparently not trespass detection, see

GAO, Rangeland Management: BLM Efforts to Prevent Unauthorized Livestock Grazing Need Strengthening (GAO/RCED-91-17) (December 1990), or monitoring, see GAO, 1992 Monitoring Report, or the evaluation of monitoring data, id. Also questionable is "inventory," since, at least as far as we have been able to determine, rangeland inventories are not being conducted anywhere. Finally, the specific parts of "the rangeland ecology component" of both BLM and the Forest Service's range management programs should be identified along with the costs assigned to each. No one can be expected to know what this component consists of, let alone how the dollar amounts provided were derived.

Page 7: The permittee contributions to range improvements presented in Figure 1.6 need substantiation and explanation. In the past, the 12.5% of the grazing fee that is returned to the states has been included in the computing of such contributions on occasion. Has it been included here? If so, we object: these monies do not belong to ranchers, they are federal funds. And, in any case, the monies have been expended for the direct economic benefit of the ranchers. Finally, we note that, compared to Figure 1.6 in the 1987 fee report, permittee contributions for range improvements have soared. The huge discrepancy between the two sets of figures cries out for reasoned explanation.

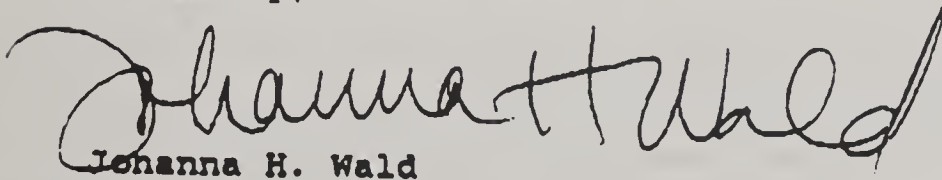
Page 35: While it is certainly true that, "[u]nder the multiple use mandate, livestock grazing, outdoor recreation, wildlife and fisheries ... are legitimate and desirable uses of national forests and public rangelands," few, if any, site-specific data have ever been published by either the BLM or the Forest Service to document the claim that public land grazing is "maintain[ing] and restor[ing] plant communities" or achieving any of the other alleged benefits set out here.

On the contrary, numerous documents published by both agencies reveal extensive, site-specific resource damage has resulted and is resulting from permitted practices at the land use plan and allotment levels. See, e.g., BLM, "Draft Resource Management Plan and Environmental Impact Statement for the San Juan, Utah Resource Area (1987); "Draft Resource Management Plan and Environmental Impact Statement for the Pinedale, Wyoming Resource Area" (1987);

Bureau of Land Management, Dept. of Interior
Range Management Division, USDA Forest Service
April 21, 1992
Page 5

"Draft Resource Management Plan and Environmental Impact Statement, Walker, Nevada Planning Area" (1985); "San Felipe Allotment Analysis, Interpretation and Evaluation - Challis, Idaho Resource Area" (1991); Paiute Meadows Allotment Evaluation - Paradise-Denic, Nevada Resource Area" (1991). See also, Forest Service, "Final Environmental Impact Statement - Toiyabe National Forest Plan (1986); "Draft Environmental Impact Statement - Proposed Prescott National Forest Plan" (1985). We object strongly to the inclusion of unsupported and unsupportable statements of this nature.

Sincerely,

A handwritten signature in cursive script, reading "Johanna H. Wald". The signature is written in dark ink and is positioned above the printed name.

Johanna H. Wald

COMMENTS ON THE GRAZING FEE REVIEW AND EVALUATION
UPDATE OF THE 1986 FINAL REPORT OF THE SECRETARIES
OF AGRICULTURE AND THE INTERIOR

BY
THE PUBLIC LANDS COUNCIL
AMERICAN FARM BUREAU FEDERATION
AMERICAN SHEEP INDUSTRY ASSOCIATION
ASSOCIATION OF NATIONAL GRASSLANDS
NATIONAL CATTLEMEN'S ASSOCIATION

APRIL 20, 1992

Amendment No. 221 to the 1992 Appropriations Bill for the Department of the Interior and Related Agencies (Forest Service) directs "the Secretaries of Agriculture and the Interior to contract for an updating and review (emphasis added) of the information contained in their joint 1986 report to Congress, 'Grazing Fee Review and Evaluation'."

Contrary to the direction issued by Congress, the agencies made the determination to comply with only half of the Congressional edict. This report to Congress, therefore, does not review the 1986 report, but simply updates the information in the original report to 1990 or, where convenient, 1992 figures. Considering that the 1986 Report was released under a hail of controversy, failure to address the points that made the original report so controversial is a contemptuous and outrageous action on the part of the agencies.

The most controversial aspects of the 1986 Report, all of which are still present in this updated version, are as follows:

1. Failure to evaluate the efficacy of the PRIA grazing fee formula, as directed to do by Congress in Section 12 of the Public Rangelands Improvement Act.
2. The study design and data collection was poor and tainted the conclusions.
3. The irregularities in statistical analysis nullify most, if not all, of the numbers used.
4. Failure to include different costs of operation on federal land.
5. Failure to consider different forage values and productive capacities between private and federal rangeland.

6. Inadequate weight given to other operating differences between private ranches and those using federal lands, like lower weight gain, lower conception rates, and higher mortality among livestock.
7. Failure to adequately consider and weigh the effect of limited bargaining power in the western states that have little private land, like Arizona, Idaho, and Nevada.
8. Failure to account for the differences in terms and services of various private land leases.
9. Failure to consider the "commensurate property" requirement of federal land leases.

In the 1992 Update, it is stated that "the Secretaries and the involved agencies agreed to: not deviate from the methodology used in the 1986 report; use statistically acceptable indexing; and where possible, update report data to 1990 values." Yet, all three of these agreements were violated in the Update, as follows:

- * Methodology Deviation: The Input Cost Index (ICI) was supplanted for the historical Prices Paid Index (PPI). The result of this transformation was to artificially impact the adjustment factors through time by deflating the prices paid for ranch inputs.
- * Statistically Unacceptable Indexing: The use of the ICI Index as the basis for updating the 1966 federal land and private land ranching nonfee/nonrent forage use costs flies in the face of logic and assumes that the relative prices of all types of nonfee/nonrent costs have remained the same since 1966. It contradicts the need for the use of price indexes that really do reflect price change item by item, as noted by the two Secretaries in their 1977 Report to Congress on the fee issue. This is also more fully discussed by Dr. Darwin Nielsen of Utah State University in his "Comments on Nonfee Cost Update" of April 16, 1992 (attachment 1). Using the Secretaries' 1977 suggestions, Nielsen shows that by using price indices applicable to each cost activity, the residual base fee in 1990 dollars can be shown to be \$2.20 per AUM rather than \$2.95 per AUM as stated in the 1992 Update, where only the ICI Index is used. An obvious disparity exists in the updating of Figure 5.4 on page 47 of the 1992 Update. The "cost factor" of debt/asset ratio was reduced from 20% in 1983 to 10% in 1990. Agency explanation for this adjustment is that the real value of ranch properties has declined and that interest rates are lower in 1990 than in 1983. However, in actuality, ranch values have dropped by 40 to 50%. Consequently, for this new relationship to be correct, western ranchers would have had to retire approximately 400% of their debt in 7 years.
- * Selective Parts Of The 1992 Report Are Updated Beyond 1990, To 1992: 1990 was a year when Beef Cattle Prices were at a record high and, because the grazing fee reflects the market prices of the previous year, the grazing fee had not yet jumped from the \$1.81 of 1990 to the \$1.97 of 1991. Due to falling market prices and rising costs of production

during 1991, the fee then dropped to \$1.92 in 1992. Yet, the parts of the report dealing with higher returns to the producer (when market prices were higher and production costs, including fees, were lower) and lower revenues to the government (before the fee jumped \$.16 in one year) are all based on 1990. The appraisal update, however, is based on 1992. Mixing the years from which the data is drawn allows for selective results and conclusions.

- * Further Mixing Of Data, Which Is Misleading: Congress specifically directed the Secretaries to address "the significance of public lands grazing relative to the Western livestock industry and the red meat industry nationwide." Federal grazing lands are grazed by both cattle and sheep. The number of federal AUMs reflects use by "livestock", both cattle and sheep. The "red meat industry" includes sheep. Yet, in Part I of the 1992 Update describing the makeup of the western "livestock" industry and its dependence on federal lands, there is no reference to sheep production, only cattle production. Throughout the Update Report, many charts, tables and passages of text refer to "livestock", but, in reality, they deal only with cattle production data. This point is important because sheep production in this nation has an even greater dependency on federal land use than does cattle production. Also, sheep market prices have been at historic lows in recent years and production costs have been increasing. To delete sheep production data from the picture skews the picture, especially when the omission is without note.

Chapter 1: In addition to failing to include the sheep industry in the discussion of the significance of federal lands grazing to the Western livestock industry and the red meat industry nationwide, the following are additional comments regarding the information in Chapter 1.

- * Preliminary results of livestock industry studies show that 69% of the cattle and 88% of the sheep produced in the 11 western states spend time on federal rangeland. Thirty to forty percent of all beef cattle producers nationwide, with herds of 100 head or greater, utilize federal rangelands. Nine percent of the nation's beef supply depend on federal lands; 15% spend some time on federal lands. Completion of the analysis of a west-wide study, by May, 1992, will provide information regarding the impact non-use of federal lands would have on the production capabilities of the private lands in present production units (ranches). Due to the intermingling of private and federal lands throughout the west, it is expected to be significant.
- * The 1992 Update, in showing the size of livestock operations dependent on federal rangelands, breaks them up into permittees with less than 100 head, or more than 500 head ("large" producers). According to this breakout, there are no medium size producers, only small and large ones. The point is that the way these statistics are presented in the Update, half of all AUMs are used by "large" permittees. In testimony given in March, 1990, BLM stated that 88% of all permittees were "small" ranchers, with 500 head or less. Typically, USDA statistics identify producers with 500 head or less as small producers. The

livestock industry considers a 300 head production unit as being of "commercial" size, not large, but just without the need for crops, or other source of income, to sustain the ranching unit.

- * Figure 1.2 shows a significant change in the number of BLM permittees, 18,800 to 17,800, yet total AUMs remain the same in each size category and in total. It seems rather unusual that 1,000 permittees sold their permits to other permittees but none of them changed the size category they fell into. The total AUMs of 17,392,750 does not appear to be used consistently in the Update report. For instance, the AUMs in Figure 2.1 (Appraisal Study) do not fit the original study nor the Update. It is recognized they are for a different date, but they do not seem to be trending in the right direction to be consistent with the Update Figure 1.2.
- * Figure 1.4, BLM and Forest Service Rangeland Program Cost "With and Without" Livestock Grazing, 1990, shows the 1990 cost of the BLM Rangeland Program attributable to livestock at \$2.18. This is \$.35 per AUM higher than the figure of \$1.83 that was given to the House Interior National Parks and Public Lands Subcommittee Chairman Vento for the same year, in July, 1991. The discrepancy needs to be explained. It is also unclear why the BLM is, apparently, a more cost efficient provider of forage than the Forest Service. The Administration's directives state that the administrative costs should concord with those of a prudent and conservative business operation. Following that line of logic, it seems that the BLM would out-compete the Forest Service in the federal rangeland forage market, and that as recently as last summer, the BLM would have been receiving a net return to grazing administration of just under eight percent.
- * Permittee investment in range improvements, although according to the 1992 Update still averaged \$.38 per AUM for 1989-90, is decreasing from previous years, due to the upheaval of the grazing fee debate. Under PRIA, producers have had stability, an opportunity to plan ahead, and confidence that their investment of private capital in the federal rangelands would provide some return. The knowledge that they could be priced off the federal rangelands at any moment has caused the value of ranches with federal permits to decline sharply and made ranchers much less willing to invest in range improvements.

Chapter 2: The Appraisal approach, design, methodology, analysis, interpretations, and conclusions of the 1986 Grazing Fee Review and Evaluation was the single greatest source of controversy surrounding the 1986 Report. Since the methodology was not changed in preparing the 1992 Update, and the conclusions are basically the same, the result is that the updated information is the same flawed, statistically unsound data produced in 1986, only updated to 1992. The livestock industry is on record through several reports and volumes of testimony identifying the faults with the 1986 Appraisal report. A critique of the report, prepared by Dr. John Fowler of New Mexico State University in April, 1992, accompanies the 1992 Update

Report. We will not rehash our many objections to the 1986 Appraisal in these comments, but instead will summarize a few key points we feel must be addressed here:

- * The review, like the 1986 report, did not address the private capitalization which created and developed the production unit, a mixture of private and federally-owned lands. While the review recognized the capitalization from the point of view of a long term asset, it did not recognize the resulting opportunity cost or the real interest cost associated with private investment in federal lands, both for the purposes of acquisition of the permit opportunity and development of the productive capacity of the permit.
- * A critical flaw in the review, as in the 1986 report, is that the inherent productivity of deeded lands as expressed in the numbers of acres required to carry an AUM of grazing are not equal. Private land is higher in productivity and, therefore, not directly comparable to federal areas without major adjustments. The analysis of the west-wide survey of the livestock industry, to be completed in May, 1992, will provide significant data to support this fact.
- * In water based states, which exist in the southwestern states, each parcel of land is associated with water rights. Inclusion of leases without direct inclusion of the whole water unit constitutes appraisal by parts. This results in a gross overvaluation of parcels that don't have water but are serviced by water from adjoining land not included in the appraisal.
- * In the 1992 appraisal update, the sampling of 260 leases for the entire west is inadequate. In addition to this inadequacy, the distribution of leases within the 6 pricing areas is inappropriate. Only 7 leases were used for Area 5; four of the six Pricing Areas had less than 22 private leases for a basis of change. There is also no description of how the sample was constructed, and there was no determination made as to whether the original pricing regions were still valid.
- * In Figure 2.2, Appraisal Value Conclusions, the last column is mislabeled. It should reflect that this is a partial update, and what good is an update when only part of the data is updated? About 40 percent of the Pricing Areas are not updated. Would the recommendation be that Pricing Area 1 fees go up, but Pricing Area 5 fees do not change because the data in Pricing Area 5 could not be updated? Also, the adjustment factor between the cost of grazing federal and private rangelands is estimated at 5%, just as it was in the 1986 report. Using the data from the appraisal report, it is possible to come up with three other adjustment factors that are as logically consistent, or more so, than the 5% used. These other factors are presented in the "Discussion of Appraisal Adjustment Percentage" prepared by Dr. Darwin Nielsen (attachment 2).
- * The area that proves to be of greatest concern is that the same lease appears in both the Private Grazing Lease Rates and, simultaneously, in the Governmental Rental Rate for the

Pricing Area. Specifically, in Pricing Area 2 data number 350250012 and 08089004 appear in both sets. This also occurs in Pricing Area 3 with data number 300090026. The mean value of the data sets will obviously move together when the numbers used in calculating the mean are the same for each data set. Adjusting leases for comparability is sometimes necessary, but the criteria for adjustment should be stated and uniformly applied. In Pricing Area 1, data number 310090035 actually decreased by \$5.54 but was adjusted upward to \$20.00; however, Data Number 310310019 increased by \$12.12 but was left the same. The procedure then was to consult experts and other data and to make another adjustment for the final adjusted value of the pricing area. Dual adjustments of this nature quickly move out of the realm of objectivity toward subjectivity and must be viewed with skepticism.

Chapter 3: The evaluation of alternative grazing fee systems contained in this chapter are based in large part on the 1986 Appraisal and the Appraisal Update, on which we have just commented to some extent. Needless to say, we find any systems based on the flawed and statistically unsound data produced by the Appraisal report unacceptable. We also reiterate our objections to the use of the ICI Index, which can be found under "Statistically Unsound Indexing" at the beginning of these comments. The NASS recommendation that data on sheep and lambs be excluded in any livestock price index is also without sound basis, as stated in our comments "Further Mixing of Data Which is Misleading."

Chapter 4: A comparison of state land lease rates occurs in Chapter 4, but no information is provided regarding the comparative values of state lands. In 1991, because of the misleading information provided in the 1986 Grazing Fee Report regarding state grazing fees, the livestock industry commissioned a study of the 16 western states, as identified in Figure B.13 of the 1986 Report. Provided here are the major factors influencing the cost differences to lessees of state and federal grazing land.

1. Control of public access: In 8 of 14 western states, the lessee can post his land against hunters and other users. In some states the lessee can sell the right to hunt on state leased land. Controlled public access reduces loss of animals due to theft and vandalism and reduces damage to range improvements.
2. Greater animal carrying capacity (productivity) on state land: (See Chart) Poorer federal rangelands require animals to range over greater distances, accounting for lesser weight gains, lower conception rates, greater herding costs, and greater loss of animals due to predators and people.

PRODUCTIVITY COMPARISON: STATE VS. FEDERAL LANDS

STATE	STATE AVERAGE ACRES/AUM	BLM ACRES/AUM	% MORE ANIMALS STATE LAND SUPPORTS	FOREST SERVICE ACRES/AUM NOT AVAILABLE
AZ	7.1	16.7	230%	
CA	N/A	13.7		
CO	5.3	10.9	200%	
ID	6.5	9.1	40%	
MT	4.3	5.9	37%	
NM	4.8	6.7	39%	
NV	3.5	17.6	500%	
OR	8.0	13.0	63%	
UT	18.0	16.6	-8%	
WY	3.8	8.8	232%	

3. Greater flexibility in grazing intensity and duration on state land: Although state leases specify the number of allowable Animal Unit Months, the lessee has flexibility in seasons of use and duration of use, allowing for greater efficiency in operation.
4. Ownership of improvements by lessee: In 13 of 14 states, the lessee owns any capital improvements he constructs on state land, which may be sold to the next lessee.
5. States require no minimum land ownership for lessees: Use of federal grazing permits requires ownership of commensurate property. A private market rate based fee system is appropriate in markets where the number of consumers is not limited. However, the federal commensurability requirements of minimum base property ownership necessarily limit the possible pool of federal lessees.

A summary of the comparisons per state are provided on the following charts:

State	Commensurability Requirement	Inspection Of All Sites During Grazing Season	Flexibility In AUM Use	Subleasing
AZ	N	N	Y	Y
CA	N	N	Y	N
CO	N	N	Y	Y
ID	N	N	Y	Y
KS	N	Y	N	N
MT	N	N	Y	Y
NE	N	N	Y	NA
NM	N	N	Y	Y
NV	N	Y	Y	N
ND	N	N	Y	Y
OK	N	N	Y	N
OR	N	Y	Y	Assignment Allowed
SD	N	N	Y	Assignment Allowed
UT	N	N	Y	Assignment Allowed
WA	N	N	Varies*	Y
WY	N	N	Y	Y

**State administers a system of leases and permits. Lease rates are higher than permit rates, and provide a greater range of tenant rights, including discretion in grazing dates and intensity.*

State	Owner Of Improvements	Control Of Hunting Or Other Access	State Land Carrying Capacity (Acres/AUM)*	Maintenance/ Improvement Responsibility	Fee	Type
AZ	Lessee	No	7.1	Lessee	\$1.56	Formula
CA	State	No	N/A	Lessee	\$1.35 To \$6.00	Market
CO	Lessee	YES	5.3	Shared	\$4.53	1/2 Market Price
ID	Lessee	No	N/A	Shared	\$4.99 (Cattle) \$3.74 (Sheep)	Formula
KS	Agency	No	N/A	Shared	N/A	Bids
MT	Lessee	YES	4.28	Lessee	\$4.24	Formula
NE	Lessee	YES	2	Lessee	\$13-\$16	Market
NM	Lessee	No	4.8	Lessee	\$3.46	Formula
NV	State	No	NA	State	\$8-\$15	Bids
ND	Lessee	YES	3-4	Lessee	\$6/Acre	Auction
OK	Lessee	YES	1	Shared	\$8.10	Market
OR	Lessee	YES	8	Shared	\$2.50- \$3.50	Board Set
SD	Lessee	No	2.63	Lessee	\$6.52	Formula
UT	Varies	No	18	Shared	\$2.32	Formula
WA	Varies**	With Special Permission	NA	Varies**	\$3.59 (Permit)	Formula
WY	Lessee	With Special Permission	3.8	Lessee+	\$2.50	Board Set

* An Animal Unit Month is the feed equivalent necessary to support a 1,000 pound cow or five sheep for one month.

**State has two tiered system of permits and leases. On leased land, which comes with a larger array of property rights, the lessee owns improvements he constructs, on permitted land the state helps construct and owns improvements.

CHAPTER 5: As stated in our beginning comments under "Statistically Unacceptable Indexing", the use of the ICI Index to update the nonfee costs assumes that the relative prices of all types of nonfee/nonrent costs have remained the same since 1966. See the "Comments on Nonfee Cost Update" of April 16, 1992, prepared by Dr. Darwin Nielsen (attachment 1). Dr. Frederick Obermiller, Oregon State University, in a soon to be published study, found that the price index updated base fees for Eastern Oregon ranching operations (drawing on previously published survey data collected in 1982) are comparable to Nielsen's for BLM allotments. In the Eastern Oregon data set, the Forest Service allotment cost equalization base fee is even lower and is, in fact, negative. Obermiller points out that he and Doctors Nielsen (Utah State University), Fowler and Torell (New Mexico State University) all conclude that the PRIA fee has kept total per AUM grazing costs in line since the current fee structure was enacted in 1978. This is because ranchers, like any other businessmen, shift the composition of the inputs they use around until a competitive balance is achieved. When production is balanced, all ranchers face the same operational cost structure per unit of intermediate output (per AUM grazed). In other words, with the PRIA grazing fee, the annual forage use costs on private rangelands and on federal rangelands are, on average, equal. That is what theory would suggest; that is what repeated studies have shown.

Updating the list of production costs which were derived from the 1966 Western Livestock Grazing Fee Study without recognizing the major shift in range improvement maintenance to the livestock permittees from the agency budgets understates the actual costs of federal land grazing by a factor approaching 10%. In 1983 the BLM changed range improvement maintenance policy, shifting the burden of responsibility from the Bureau to the permittees. Elsewhere, the BLM has stated that this policy change added, on average, one dollar per AUM to the BLM permittees' forage use costs. The price index updated data by Nielsen are for the year 1966 and do not capture the cost effect of the policy change. Adding the extra one dollar per AUM to BLM permittees' average forage use costs reduces the implied price updated base fee back down to the original \$1.23 per AUM range.

Dr. Obermiller maintains that this \$1.23 per AUM base fee has been paid annually by all permittees since 1969. The \$1.23 per AUM is, on average, the amount of the annualized value of the "permit cost (value)" paid by permittees and observed in the 1966 data base. The explanation is detailed in the 1969 House and Senate Hearings Records on Federal grazing fees. For various reasons, the two Departments and the Administration refused to recognize this cost when setting the "level playing field" grazing fees using the \$1.23 per AUM base. This means that in the 23 years since 1969 permittees have been "purchasing" (again!) their permits and paying for them at the average rate of \$1.23 per AUM per year. This 23 year time span has been sufficient for full amortization of the original permit cost, suggesting that any wealth transfer to public land ranchers resulting from the awarding of permits has been negated. This same logic can be used to argue for a "zero price" grazing fee.

Comments on Nonfee Cost Update

Darwin B. Nielsen

An "Input Cost Index (ICI)" was used to update the 1966 study to 1990. The same index number (ICI = 289) was used for every nonfee cost item. They reported that the ICI was used since individual indices for each cost item was not available. There are several components of the (ICI) that are questionable relative to the nonfee costs of using public lands. The consumer price index accounts for 30.4% of the ICI, production commodities 57.6 and interest, taxes, insurance, and farm wage rates 12%. The consumer price index is only remotely related to the nonfee costs. Many components of the production commodities portion are also questionable such as: feeder livestock, seed, fertilizer and chemicals, tractors and self-propelled machinery, other machinery and farm services. Taxes and insurance are also questionable as part of the index.

USDA publishes many production indices that come much nearer measuring the changes in cost of grazing on public lands than the ICI. I used those indices from USDA that, in my opinion, fit as near as possible the individual nonfee cost items from the 1966 fee study. These indices are listed in the following tables.

One might ask if the two different sets of indices make any difference in the final fee estimate. The following summary indicates that it does make a difference:

	<u>Cattle</u>			<u>Sheep</u>		
	Public	Private		Public	Private	
Total nonfee cost:	\$9.48 (\$12.48)*	\$7.95 (\$10.41)		\$13.09 (\$17.60)	\$11.24 (\$14.18)	
Private lease rate or fee:	3.02 (2.28)	4.55 (4.35)		2.65 (1.88)	4.50 (4.30)	
Total cost:	12.50 (14.76)	12.50 (14.76)		15.74 (19.48)	15.74 (19.48)	
Diff. or public fee:	\$3.02 (\$2.28)			\$2.65 (\$1.88)		
WL average:		\$2.95 (\$2.20)				
*(Nielsen estimate)						

Fee and Nonfee Costs of Grazing Private Lands (Cattle)
(Updated with January 1990 Index Numbers)

2

<u>Item</u>	<u>1966</u>	<u>1977 (index)</u>	<u>1990 (index)</u>		
Lost animals	\$0.37	\$0.62(168)	(180)*	(meat animals/prices received)	= \$1.12
Association fees	0.00	(2.00)	(1.69)	(production items)	= 0.00
Veterinarian	0.13	0.29(226)	(1.79)	(wage rates)	= 0.53
Moving livestock	0.25	0.58(230)	(2.02)	(autos & truck) + (wage rates)	= 1.16
Herding	0.19	0.43(226)	(1.79)	(wage rates)	= 0.77
Salting & feeding	0.83	1.74(210)	(1.97)	(auto & truck) + (feed)	= 3.09
Travel	0.25	0.55(218)	(2.13)	(auto & truck) + (fuel & energy)	= 1.19
Water	0.06	0.12(2.00)	(1.69)	(production items)	= 0.20
Fence maintenance	0.25	0.57(228)	(1.61)	(wages) + (building & fencing)	= 0.92
Horse cost	0.10	0.19(2.00)	(1.86)	(feed)	= 0.31
Water maintenance	0.15	0.34(228)	(1.61)	(wages) + (building & fencing)	= 0.55
Devel. depreciation	0.03	0.06(2.00)	(1.69)	(production items)	= 0.10
Other costs	<u>0.14</u>	0.28(2.00)	(1.69)	(production items)	= <u>0.47</u>
	\$2.75			TOTAL NONFEE COST	= 10.41

1990 FEE COSTS:

Private Fee = \$435/AUM** (excluding nonfee cost)*

TOTAL 1990 COSTS: Private Lease - \$10.41 ÷ \$435 = \$14.76

*Indices taken from USDA, "Agricultural Prices," Washington, D.C., Economic and Statistics, and Cooperatives Service, January 31, 1990.

*Based on private lease of \$1.79 for cattle from 1966 study.

Fee and Nonfee Costs of Grazing Federal Lands (Cattle)
(Updated with January 1990 Index Numbers)

3

<u>Item</u>	<u>1966</u>	<u>1977 (index)</u>	<u>1990 (index)</u>	
Lost animals	\$0.60	\$1.01 (1.68)	(1.80)*	(meat animals/prices received) = \$1.82
Association fees	0.08	0.16 (2.00)	(1.69)	(production items) = 0.27
Veterinarian	0.11	0.25 (2.26)	(1.79)	(wage rates) = 0.45
Moving livestock	0.24	0.55 (2.30)	(2.02)	(autos & trucks) +
				(wage rates) = 1.11
Herding	0.46	1.04 (2.26)	(1.79)	(wage rates) = 1.86
Salting & feeding	0.56	1.18 (2.10)	(1.97)	(auto & truck) +
				(feed) = 2.32
Travel	0.32	0.70 (2.18)	(2.13)	(auto & truck) +
				(fuel & energy) = 1.49
Water	0.08	0.16 (2.00)	(1.69)	(production items) = 0.27
Fence maintenance	0.24	0.55 (2.28)	(1.61)	(wages) +
				(building & fencing) = 0.89
Horse cost	0.16	0.30 (1.86)	(1.68)	(feed) = 0.50
Water maintenance	0.19	0.43 (2.28)	(1.61)	(wages) +
				(building & fencing) = 0.69
Devel. depreciation	0.11	0.22 (2.00)	(1.69)	(production items) = 0.37
Other costs	<u>0.13</u>	0.26 (2.00)	(1.69)	(production items) = <u>0.44</u>
	\$3.28			TOTAL NONFEE COST = 12.48

1990 FEE COSTS:

Forest Service = \$1.81/AUM
 BLM = \$1.81/AUM

TOTAL 1990 COSTS: Forest Service - \$12.48 + \$1.81 = \$14.29
 BLM - \$12.48 + \$1.81 = \$14.29

*Indices taken from USDA, "Agricultural Prices." Washington, D.C., Economic and Statistics, and Cooperatives Service, January 31, 1990.

Fee and Nonfee Costs of Grazing Federal Lands (Sheep)
(Updated with January 1990 Index Numbers)

4

<u>Item</u>	<u>1966</u>	<u>1977 (index)</u>	<u>1990 (index)</u>	
Lost animals	\$0.70	(1.68)	(1.80)*	(meat animals/prices received) = \$2.12
Association fees	0.04	(2.00)	(1.69)	(production items) = 0.14
Veterinarian	0.11	(2.26)	(1.79)	(wage rates) = 0.44
Moving livestock	0.42	(2.30)	(2.02)	(autos & trucks) + (wage rates) = 1.95
Herding	1.33	(2.26)	(1.79)	(wage rates) = 5.38
Salting & feeding	0.55	(2.10)	(1.97)	(auto & truck) + (feed) = 2.28
Travel	0.49	(2.18)	(2.15)	(auto & truck) + (fuel & energy) = 2.27
Water	0.15	(2.00)	(1.69)	(production items) = 0.51
Fence maintenance	0.09	(2.28)	(1.61)	(wages) + (building & fencing) = 0.33
Horse cost	0.16	(1.86)	(1.68)	(feed) = 0.50
Water maintenance	0.11	(2.28)	(1.61)	(wages) + (building & fencing) = 0.40
Devel. depreciation	0.09	(2.00)	(1.69)	(production items) = 0.30
Other costs	<u>0.29</u>	(2.00)	(1.69)	(production items) = <u>0.98</u>
	\$3.28			TOTAL NONFEE COST = 17.60

1990 FEE COSTS:

Forest Service = \$1.81/AUM
BLM = \$1.81/AUM

TOTAL 1990 COSTS: Forest Service - \$17.60 ÷ \$1.81 = \$19.41
BLM - \$17.60 ÷ \$1.81 = \$19.41

*Indices taken from USDA, "Agricultural Prices," Washington, D.C., Economic and Statistics, and Cooperatives Service, January 31, 1990.

Fee and Nonfee Costs of Grazing Private Lands (Sheep)
(Updated with January 1990 Index Numbers)

5

<u>Item</u>	<u>1966</u>	<u>1977 (index)</u>	<u>1990 (index)</u>		
Lost animals	\$0.65	\$0.62(1.68)	(1.80)*	(meat animals/prices received)	= \$1.97
Association fees	0.00	(2.00)	(1.69)	(production items)	= 0.00
Veterinarian	0.11	0.29(2.26)	(1.79)	(wage rates)	= 0.44
Moving livestock	0.38	0.58(2.30)	(2.02)	(autos & truck) -	
				(wage rates)	= 1.77
Herding	1.16	0.43(2.26)	(1.79)	(wage rates)	= 4.69
Salting & feeding	0.45	1.74(2.10)	(1.97)	(auto & truck) +	
				(feed)	= 1.86
Travel	0.43	0.55(2.18)	(2.13)	(auto & truck) +	
				(fuel & energy)	= 2.00
Water	0.16	0.12(2.00)	(1.69)	(production items)	= 0.54
Fence maintenance	0.15	0.57(2.28)	(1.61)	(wages) +	
				(building & fencing)	= 0.55
Horse cost	0.07	0.19(2.00)	(1.86)	(feed)	= 0.22
Water maintenance	0.09	0.34(2.28)	(1.61)	(wages) +	
				(building & fencing)	= 0.33
Devel. depreciation	0.02	0.06(2.00)	(1.69)	(production items)	= 0.07
Other costs	<u>0.22</u>	0.28(2.00)	(1.69)	(production items)	= <u>0.74</u>
	\$3.89			TOTAL NONFEE COST	= 15.18

1990 FEE COSTS:

Private Fee = \$4.30/AUM** (excluding nonfee cost)*

TOTAL 1990 COSTS: Private Lease - \$15.18 + \$4.30 = \$19.48*

*Indices taken from USDA, "Agricultural Prices," Washington, D.C., Economic and Statistics, and Cooperatives Service, January 31, 1990.

*Based on private lease of \$1.77 for sheep from 1966 fee study.

The results are significantly different

Government estimate:	$\$2.95 - \1.81 (1990 fee)	= \$1.14 increase in fees
Nielsen Estimate:	$2.20 - 1.81$	= \$0.39 increase in fees

The increase in fees is the amount fees would have to increase to retain the public-private total cost equality which was used to set fees in 1966

Discussion of Appraisal Adjustment Percentage

Darwin B. Nielsen

- (1) Adjustment used by appraisers: (page 135)

$$\frac{\$6.87(PVT) - \$6.53(PUB)}{\$6.87(PVT)} = \underline{.05}$$

a - uses clipped data - 70% and subfiles D, F, thru J

b - uses simple ave. prices

- (2) Using same data but using wt. ave. prices (page 135)

$$\frac{\$6.53(PVT) - \$6.01(PUB)}{\$6.53(PVT)} = \underline{.08}$$

a - uses clipped data - 70% and subfiles D, F thru J

b - uses wt. averages where wt. is acres in each lease,
wt. ave. should be more representative than simple ave.

- (3) Using unclipped data from subfile J only (page 93) and ave. price

$$\frac{\$7.93(PVT) - \$6.73(PUB)}{\$7.93(PVT)} = \underline{.15}$$

a - clipping is unjustified scientifically - it is arbitrary.

b - subfile J is represented in report as the subfile most nearly the same as public grazing.

- (4) Using unclipped data from subfile J only and wt. ave. price (page 93)

$$\frac{\$7.32(PVT) - \$5.54(PUB)}{\$7.32(PVT)} = \underline{.24}$$

a - this seems to be the most logical adjustment factor if one must accept anything from appraisal study

Does this impact the results of the appraisal study?

Price Area	Grazing Value	Adjustment Factor				Advance Payment
		<u>.05</u>	<u>.08</u>	<u>.15</u>	<u>.24</u>	
1	\$10.00/AUM	\$9.50/AUM	\$9.20/AUM	\$8.50/AUM	\$7.60/AUM	\$6.84/AUM
2	7.50	7.10	6.90	6.38	5.70	5.13
3	8.00	7.60	7.36	6.80	6.05	5.45
4	6.25	5.90	5.75	5.31	4.75	4.27
5	5.50	5.20	5.06	4.68	4.15	3.73
6	6.75	6.40	6.21	5.74	5.10	4.59

The final value per pricing area is 68 percent of the original proposal made in the appraisal report.

CRITIQUE OF:
GRAZING FEE REVIEW AND EVALUATION
A REPORT FROM THE SECRETARY OF AGRICULTURE
THE SECRETARY OF THE INTERIOR 1986.

Dr. John M. Fowler and Mike J. Fusco*

Introduction

The sunset clause in the PRIA that required the formula for grazing fees to be reevaluated by December of 1985 resulted in a large scale effort to determine the fair market value of public forage. The report entitled "Grazing Fee Review and Evaluation" was written to summarize the studies and collective thought. This report was released in February 1986 by the Secretaries of Agriculture and Interior. The basic problem is solely of determining a price of public forage that is concurrently fair and equitable to both range livestock industry and provides a reasonable return for federal forage. Federal forage has historically been regulated and therefore, has no efficient market place to determine price. Forage prices in the private sector are the logical proxy for estimating the values of federal forage. The "value in exchange" for private forage could be the basis for "value in use" of federal forage.

Soon after the release of the 1986 Grazing Fee Review and Evaluation there appeared several critiques of the overall approach, design, methodology, analysis and interpretations. The basis of the positive and negative aspects of the studies will be summarized, expanded and consolidated in this treatise.

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MASS Appraisal Techniques

The mass appraisal technique was selected as an appropriate technique to determine the rental value of federal forage based on the market rental value of private native rangeland. Mass appraisal is defined as "The process of valuing a universal of properties as of a given date in a uniform order, utilizing standard methodology, employing a common reference of data, and allowing for statistical testing." The technique relies solely on market data and does not incorporate the income approach to value or the replacement cost depreciated approach to value. Differences in these approaches are usually reconciled. The income approach has historically been lower than the market value; this would indicate that market values should be viewed as upper limits.

The mass appraisal technique may provide an indication of the market rental rates but this rate is for a specific point in time. The period studied was 1983 through 1984, which was a peak lease period. The peak was both in terms of numbers of leases but equally important the prices of the grazing lease were at an all-time high as evidenced by the competitive lease bids on the McGregor Range. In addition to the questions of the appropriate time period, value in exchange versus value in use; the question of comparability of public to private lease must be examined.

The market value approach of the mass appraisal technique examines similar properties and makes adjustments necessary to improve comparability. Some very strong assumptions were necessary before the properties could be considered similar. The appraisers concluded that similarity exists based on five factors: (1) on-sight stock water, (2) similar season of use, (3) similar availability of access, (4) similar ranges in size, and (5)

similarities in pricing size. Each "similarity" must be considered and must outweigh the dissimilarities. A major concern would be the comparability of management objectives; is the "highest and best use" of private profit maximization similar to the agency objective of multiple use and sustained yield? Are the services, facilities and improvements involved in the private leases similar to the service facilities and improvements of the federal lands? Is the inherent quality of the land similar or were the best quality lands homesteaded first, thereby making the deeded private lands higher in quality than the retained federal lands? This is particularly true of the BLM land areas.

Forage quality, combined with rangeland features such as topography, slope, aspect, relief, elevation, and rangeland developments, such as water (Tembo, 1990) determined the range's actual value (Rowlands and Stuth, 1989, Squires, 1988). Range/animal performance interactions were not considered in the 1986 study. Herd performance, individual weight gains, calf crops, weaning weights, etc., indicate that performance is higher on private rangelands than public (Stoddart and Smith, 1943, Holechek, In Press). Higher grazing fees would be obtainable for rangelands that provide peak animal performance.

The value of the forage, whether it is public or private is a result of derived demand for that factor of production. The more efficient the factor and the higher the value of the final product imputes a higher fee for the factor; i.e. a higher marginal value product attributable to the factor.

Private Comparison to Public

The process of examining private leases and using the efficient private sector prices as a proxy for public forage has merit if, and only if, the appropriate adjustments are made

to answer comparability. Two major considerations are critical; recognizing the bundle of goods provided in the federal permits, and only including the portion of the private lease that accurately reflects the same bundle of goods. To make private lease rates more comparable to the federal permit terms and conditions, the following adjustments must be considered.

$$FMV = MRR - SV - CC - Q - IC - PC$$

where:

FMV = fair market value; the estimate of the value of a federal AUM of grazing of allocated in a competitive market.

MRR = Market rental rate; negotiated price of private leases including all service facilities and improvements.

SV = Service value; value of services provided with a private lease that are not provided with a federal lease.

CC = Compliance Cost; cost of meeting attendance, policy and regulation compliance associated with the objective of multiple use of federal range.

Q = Quality; adjustment for inherent difference in forage quality between federal and private lands.

IC = Investment Cost; the annualized cost of investments depreciated over the expected life of the investment.

PC = Permit Cost; the amortized cost of obtaining the federal permit.

Identification of appropriate information and insufficient data collection imposed a

significant constraint on the establishment of comparability between federal and private rangelands. The actual number of lease transactions for mature cattle that had at least 70 percent nonfederal ownership was only 1,131 leases in 1983 for all six pricing regions of the west. The total was 3,101 observations for the period between 1977 thru 1983.

Appraisal Methodology and Analysis

The overall mass appraisal approach does have merit and validity if conducted correctly. However, adjustments are necessary. It is really the ability to analyze and make appropriate inferences that were seriously deficient in the 1986 grazing fee evaluation report.

There was no scientific or statistical credibility to the method of analysis or the conclusions drawn in this grazing fee study. Actual survey sample size was much too small to lend itself to statistical validity. In certain areas surveys targeted the wrong people (i.e. farmers). Farmers seldom lease native range. They lease improved pasture and/or crop aftermath (fodder). Prices for these leases are generally much higher due to "quality" of forage and "availability of forage". Specific entities were selectively left off the mailing list for the survey. Union Pacific Railroad, the largest landlord in Wyoming, was excluded from the Wyoming data set, (Kearl, 1986). Their grazing fees were much lower than most of the targeted survey groups.

Area responses were not weighted to give a clear picture of private land lease rates. Nevada, an area of lower lease rates had only 12 responses to the survey, while California, the area of highest lease rates had 332 response, (Kearl, 1986). Since no weighting factor was developed a bias may have been created that indicates a higher private land grazing fee

for the western U.S. Observations of 1 year leases exceed those for all other periods by 120 percent. Thus an analysis that includes a disproportionate share of 1 year leases will skew and bias results toward higher lease fees. Therefore, incorrect inferences will likely be drawn unless adjustments are made for a longer term of lease. Ninety-five percent of the private leases were five years or less, 69 percent of private leases were for one year or less, which is not representative of the ten-year federal permits (Public Land Council, 1984).

Another fatal flaw of the analysis was the practice of counting each year of a lease as a separate observation. In statistical analysis, each observation must be independent. This leads to a statistical problem known as autocorrelation resulting in disproportionate weighting. When observations are made over time a "disturbance" occurring at one period will carry over into other periods because of lack of independence (Kmenta, 1971). There were three fundamental problems with autocorrelation, which apply to this study. First, unbiased estimates of the population were not obtained. Second, least squares formulas for sampling variances of the regression coefficients (used in statistical analysis), resulted in a serious underestimate of sample variances. In any case these formulas are no longer valid, nor are the precise forms of the t and F tests derived for the linear model. Third, inefficient predictions were obtained, that is predictions with needlessly large sample variances (Johnston, 1963).

Individual leases that included different classes or species of livestock were separated into different samples. This leads to a problem in statistical analysis referred to as multicollinearity. The consequences of creating a data set that has linear dependence between the explanatory variables are as follows:

1. "The precision of estimation falls so that it becomes very difficult, if not impossible, to disentangle the relative influences of the various X variables. This loss of precision has three aspects: specific estimates may have very large errors; these errors may be highly correlated, one with another; and the sampling variances of the coefficients will be very large.

2. Investigators are sometimes led to drop variables incorrectly from an analysis because their coefficients are not significantly different from zero, but the true situation may not be that the variable has no effect but simply that the set of sample data has not enabled the variation to be isolated.

3. Estimates of coefficients become very sensitive to particular sets of sample data, and the addition of a few more observation can sometimes produce dramatic shifts in some of the coefficients" (Johnston, 1963, pg 160).

The authors' inability to account for multicollinearity prohibited an accurate valuation of services provided in the private lease. This resulted in a highly subjective five percent estimate for services that had no foundation or credibility.

The statistical analysis performed did not properly treat the presense of heterogeneity in the range livestock industry. This is a major problem since data cannot properly be aggregated unless it is similar. Data aggregation, in spite of obvious heterogeneity, is another fatal flaw of this study. The appraisers stratified the western U.S. into six "price areas" based on their criteria of "reasonable homogenous prices". The stratifications were inappropriate in that there exists a great deal of variability within and among subfiles. There appear to be twenty-fold differences, or more, between the lowest and highest prices

within any price area and subfile. Differences of 100-fold or more occur, and differences of only 10-fold seem to be the exception in subfiles with significant numbers of observations (Kearl, 1986).

Categorizing lease samples into subfiles without testing for statistical differences is unacceptable. If differences occur they needed to be accounted for, not "dismissed". Reasons for excluding individual subfiles from analysis were inconsistent and scientifically invalid. It was inappropriate to include subfile G in an analysis of native range when subfile G was defined to include observations with greater than ten percent irrigated or sub-irrigated pasture. Only areas undergrazed (75 percent of carrying capacity) and overgrazed (125 percent of carrying capacity) were included in subfile D. Why separate these from "normal stocking rate" if they are all included in final analysis? Why were leases that had not been renegotiated within the past 10 years deleted from subfile I, which is defined as ownership as 100 percent corporate, railroad, or state? Subfile J contains transactions with on-site stockwater and vegetative cover predominately native and less than ten percent of the lease subirrigated or irrigated. This subfile was included into the overall computation of private lease rates and was also used to determine the value of federal lease rates. This could cause bias of the means, by drawing the mean of the private lease rate closer to the mean of the Federal lease rate.

Subfile A includes those leases with transactions that were considered being based on "other than Fair Market Value". They were deleted from consideration for this reason but who is to consider "other than Fair Market Value" (Gray, 1986). This adds another confounding factor. Subfile B leases that were paid in alternative methods, were also

deleted. This "alternative method" should have been converted into monetary value and included. Subfile E, those leases that were considered "take in " leases, was also excluded from consideration in the final analysis. It should have been included after services, facilities, and improvements were valued and subtracted to determine the value of the forage.

Clipping, removing the top and bottom 15 percent of the data, is not acceptable in statistical or in economic theory. Ranching in the western United States is heterogeneous, clipping distorts the data even more. The true variation in the ranching industry is not represented. The *t*-test, which was used for statistical analysis, assumes normality, clipping assumes the data is not normally distributed. It was also stated that the data show strong correlation among the lease variables, but this is not presented or discussed further.

The variability in grazing fees charged on private rangelands was brushed off as "obviously erroneous or misstated". The factors responsible; "cost of services" by the lessors, were excluded from consideration in pricing leases, yet they are critical in explaining variations in grazing fees on private lands. Services and facilities are a major reason grazing fees on private rangeland are higher. Landlord services and facilities contribute approximately 30 percent of the market rental rate (MRR) (Fowler, et al., 1985). These services and facilities are not provided on federal lands grazing. Failure to include service and facilities prohibits a direct comparison to private land grazing fees. Services include but are not limited to; direct "caretaking of the livestock", doctoring, supplemental feeding, salting, rotating livestock, and repairs to improvements. Facilities include use of headquarters, corrals, traps and other ranch operational improvements.

The ability of the appraisal team to adequately analyze the data collected was a major limitation of this study. That, coupled with the lack of available information concerning the value of services and facilities provided by lessors, greatly detract from the validity of this study. The analysis did not distinguish the forage value separately from other goods and services provided in the private leases; therefore a valuation of solely forage, which is all that is transferred in a federal permit, was not possible.

An independent appraisal team did review the report. However, this team did not gather any new data, thus they were constrained by the inadequate information previously collected. A letter verifying that the information collected on the original questionnaires was correct, was sent out to 868 parties. Five hundred and sixty-eight out of the eight hundred and sixty-eight did not respond. No Response was interpreted as meaning that the original information collected was correct. This information is highly misleading and does not follow established statistical sampling procedure.

Federal grazing permit holders have a different division of fixed and variable costs than the private land lessees or owner operators. Final estimates of the appraised rental value of public land grazing were based on private land lease rates for a given area adjusted downward five percent. According to the report the adjustment reflects the impact of the terms and conditions associated with a federal grazing permit and privileges as compared to typical private land lease terms and conditions. The five percent adjustment is insufficient to account for services and facilities not included in the federal lease let alone offsetting favorable lease terms and lease conditions, which change the entire situation for public lessees compared to private. The specific costs incurred by permittee were never

obtained. The grazing fee only represents 15-20 percent of the total costs to ranchers on public grazing permits. Non-fee costs, which were not addressed for federal land, are four to five times higher than the grazing fee (Obermiller and Lambert, 1984).

Average total cost per AUM on leased land after considering such expenses as turnout costs, gathering/takeoff, routine management, maintenance, salting, feeding, and veterinary services, meetings, death loss, fees and rents, and other expenses were comparable or higher on public leases than on private leases in Oregon and Idaho during 1982. In Nevada, during 1983, the average total cost per AUM for permittees came to \$10.39; Wyoming, during 1983, had total labor costs per AUM vary from \$13.55 on Thunder Basin National Grassland to \$14.67 on other federal and state leases. Average total costs were only \$7.54 for grazing livestock on deeded land during this same period in Wyoming. Average total costs per AUM for permittees grazing livestock on North Dakota National Grasslands during 1983 varied from \$14.78 on McKenzie Grazing Association to \$10.89 on Medora Grazing Association. During 1983, the average total costs per AUM experienced by South Dakota permittees grazing livestock on national grasslands varied from \$9.75 on Grand River Cooperative Grazing District to \$10.38 on White River Cooperative Grazing District. The average total cost per AUM for grazing livestock on National Forest allotments in South Dakota in 1983 varied from \$20.94 to \$17.40. Variations in the cost/AUM resulted from differences in the size of the permit or lease, number of animals in the allotment, length of grazing season, distance of the allotment from the ranch headquarters, distance from the last pasture on allotment in which the livestock were grazed, existence of mining or geological survey work in the allotment, and class of livestock on the

allotment (Obermiller and Lambert, 1984). Non-fee costs incurred are far from "erroneous". But these costs incurred by permittee were never obtained in the appraisal report. PRIA (1978), Section 6, states that "fees should be based on the economic value of the use to the user" (i.e. value in use), not the fair market rental value of forage; therefore, non-fee production costs incurred by the lessee are critical.

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LEVEL OF DEPENDENCY OF BEEF CATTLE 1990

Dr. John M. Fowler and Jerry Hawkes

Federal land contributes to 9.0 percent of the nation's beef supply. The interpretation is that 9.0 percent of the nation's beef supply spends a portion of its life on federal land (BLM Public Land Statistics, USFS Grazing Statistical Summary, and USDA Cattle Industry). This number has been derived by: Summing the cattle grazing the BLM and USFS administered lands. This number of beef cattle is then divided by the nation's total beef cattle inventory (Economic Research Service Budget, 1984; BLM Public Land Statistics, 1990; USFS Grazing Statistical Summary, 1990; and USDA Cattle Inventory Reports, 1990) to arrive at the 9.0 percent figure (Table 1).

The federal dependency levels indicated prior to this study were estimated to be two percent (Waste of the West, L. Jacobs). This percentage is artificially low, which may be accredited to the methodology used. The method of dividing the number of federal AUMs by 12 and then dividing by the national cattle inventory has a serious flaw. The western rangelands are typically grazed seasonally; therefore, the practice of dividing federal AUM's by 12 months deflates the actual numbers of cattle dependent on federal land for a portion of their forage requirements.

The level of dependency varies drastically by state and by region within the nation (table 1). Nevada has over 80 percent of its beef deriving a portion of its forage from federal land, whereas Washington only has 6 percent dependency on federal forage. The eleven western states have 2.8 million beef cattle spending some portion of their lives on federal lands; this constitutes 42 percent of the 6.7 million total beef cattle in the 11 western states.

Calves that are produced on the federal lands make a significant contribution to the local, state, and federal economies. There are 2.16 million calves produced on federal lands. These calves weigh 971.8¹ million pounds resulting in 923.2 million dollars of gross income to the federal land ranchers. This 923.2 million dollars is then distributed throughout the local and state economies directly and indirectly (USDA Agricultural Prices, 1990). By using the multiplier effect, the 923.2² million dollars is estimated to become 1.52³ billion dollars available to the local and state economies annually strictly from calf sales produced on federal land (Economic Multipliers, M.K. Beutler, 1992). The economic contribution that is made by the federal land rancher to the respective economies provides a significant and sustainable base.

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1. The number of pounds produced is determined by multiplying the number of calves by the average weaning weight of 450 lbs. for these calves utilizing federal rangelands.
 2. The 923.2 million dollars produced by these calves is determined by multiplying the number of pounds by a national average of \$.95 per pound.
 3. The 1.52 billion dollars produced by the beef cattle industry for the total economies is determined by multiplying the 923.2 million dollars by 1.65 equaling 1.52 billion dollars.

Table 1. *LEVEL OF DEPENDENCY OF BEEF CATTLE, 1990*

STATE	BLM ¹ NUMBERS	USFS ² NUMBERS	TOTAL FEDERAL	BEEF IN ³ STATE	PERCENTAGE FEDERAL
AZ	42,756	131,351	174,107	259,000	67.22%
CA	33,704	285,201	318,905	955,000	33.39%
CO	85,628	173,767	259,395	774,000	33.51%
ID	169,406	97,088	266,494	530,000	50.28%
MT	291,072	117,768	408,840	1,368,000	29.89%
NE	132	20,337	20,469	1,755,000	1.17%
NV	206,072	46,644	242,716	290,000	83.70%
NM	125,457	80,934	206,391	610,000	33.83%
ND	1,606	43,476	45,082	912,000	4.94%
OR	171,522	97,710	269,232	592,000	45.48%
SD	12,308	70,577	82,885	1,505,000	5.51%
UT	88,578	93,660	182,238	333,000	54.73%
WA	4,404	19,215	23,619	379,000	6.23%
WY	326,651	112,533	439,184	650,000	67.57%
TOTALS 14 STATES	1,627,987	1,390,261	3,018,248	10,912,000	27.66%
TOTALS 11 STATES	1,613,941	1,255,871	2,869,812	6,740,000	42.58%
NATIONAL INVENTORY			3,018,248	33,705,000	8.95%

Sources.

- ¹ B.L.M. Public Land Statistics 1990
- ² U.S.F.S. Grazing Statistical Summary 1990
- ³ U.S.D.A. Cattle Inventory Reports 1990

Footnote:

The A.U.M. and beef numbers for N.D., S.D., N.E. for the B.L.M. are developed using historical preference data.

COMPETITIVE BID FOR PUBLIC FORAGE: McGREGOR RANGE EXAMPLE

Dr. John M. Fowler

Federal forage has historically been regulated for price and for the number of animal unit months (AUMs) that can be carried. Determining an efficient price is difficult without a market place to allow buyers and sellers to negotiate a market clearing price for federal forage. Historically private land lease rates have been studied to help determine a "fair" price both to the user and to the basic range resource. The private market was studied extensively in a 1966 survey and again, with a mass appraisal method in the 1986 report entitled "Grazing Fee Review and Evaluation".

The process of examining private lease transactions and using the prices as an approximate rate for federal rangeland has merit if, and only if, the quality of forage and conditions for harvesting are directly comparable. Two major considerations are critical: first, recognizing the bundle of goods and services or conditions of the private lease and second, including only that portion of the total transaction price that accurately reflects the same bundle of goods and services that are obtained from the federal term permit. Private services may include but are not limited to; direct caretaking of the livestock, doctoring, supplemental feeding, salting-rotating livestock, and repairs to improvements. Private facilities may include use of headquarters, corrals, traps and other ranch operational improvements. Neither of which are provided with the federal grazing permit.

Direct valuation of services and facilities by Gray et al. (1980); Fowler et al. (1985); and Torell et al. (1989) has indicated that the value of services and facilities is approximately 30 percent of the total transaction price in New Mexico. These approaches

did not adjust for quality or multiple-use management objectives. What is necessary to minimize adjustments would be large-scale competitive leases for federal forage. This type of grazing scenario occurs at the unique setting known as McGregor Range.¹ The McGregor Range in New Mexico is owned by the Department of the Army and is administered by the Bureau of Land Management (BLM). McGregor is the only area of significant size (271,000 acres leased) where federal forage is auctioned off by competitive bidding, with a \$4.00 per AUM minimum bid. The weighted average bids for the 1991 and 1992 grazing seasons were \$4.73 and \$4.20 per AUM respectively.

On the McGregor Range certain services are provided by a full-time BLM range crew which are not provided in the standard federal grazing permit. The BLM is responsible for water, fence, maintenance, and dependent depreciation at a cost of \$3.93/AUM². Permittees bear these responsibilities on typical federal lands. The value of these services to the rancher was not the inefficient cost of the BLM range crew, but rather the cost of the rancher providing the services for himself. The mean value of these services was determined from the weighted average costs of the federal permittee and private operator providing the same services and facilities, and denoted as subscripts a and b in table 1. The average cost of these services and facilities per AUM for federal permittees was \$2.22 in 1990 and the private operators cost for the same time period was \$1.77/AUM (see table 9). A mean of \$1.99 represents an average value to the livestock

¹Fort Mead and Fort Robinson also have competitive bidding for leasing, however, both areas lease a relatively small number of AUMs.

²The BLM's cost of providing these services was \$3.93 (Gallacher, 1991). However, this was an atypical year with greater than average expenses and extensive water haul requirements eventually resulting in the closure of three allotments.

producer for these provided services.

Subtracting the \$1.99 value of services not supplied to normal federal rangelands yields a competitive bid forage price of \$2.74/AUM and \$2.21/AUM for 1991 and 1992. Even the \$2.74 and \$2.21 fees are an upper limit for federal AUM's in that no value is attributed to rancher's historic and continued levels of investment in purchasing the permit with associated capital improvements. Research shows that over 80 percent of all ranches have purchased the permit since the adjudication of the 1934 Taylor Grazing Act (Nielson and Workman, 1971 and Torell et al., 1991).

Additional reasons that the figures of \$2.74 and \$2.21 are upper limits are: the quality of the McGregor Range forage is higher than that of typical federal lands, and the McGregor Range is not managed for multiple-use. The McGregor Range is not open to the public, therefore lacks the related operational difficulties of most other federal lands. The fee level of \$2.74 and \$2.21 should function as an upper limit for federal forage for 1991 and 1992.

Table 1. Comparison of total costs of grazing McGregor Range to the total costs of Federal land and private lease, 1990.

	McGREGOR RANGE		FEDERAL*	PRIVATE*
Item	Cost \$/AUM	Item	Cost \$/AUM	Cost \$/AUM
Lost animals	0.80	Lost animals	1.82	1.12
Association fee	0.09	Association fee	0.27	0
Veterinary	0.48	Veterinary	0.45	0.53
Shipping & herding	1.94	Moving livestock	1.11	1.16
		Herding	1.86	0.77
Salting & feeding	3.67	Salting & feeding	2.32	3.09
Travel	2.53	Travel	1.49	1.19
Water	BLM	Water	0.27 ^a	0.20 ^b
Fence maintenance	BLM	Fence maintenance	0.89 ^a	0.92 ^b
Horse cost	0.56	Horse cost	0.50	0.31
Water maintenance	BLM	Water maintenance	0.69 ^a	0.55 ^b
Development depreciation	BLM	Development depreciation	$\frac{0.37^a}{\Sigma=2.22}$	$\frac{0.10^b}{\Sigma=1.77}$ $\bar{X}=1.99$
Other cost	1.15	Other cost	0.44	0.47
Total Non-fee costs	11.22	Total Non-fee costs	12.48	10.41
Competitive bid	5.21	Competitive bid	1.81	4.35
	0.00	PERMIT COST:	3.25*	0.00
TOTAL COST	16.43		17.54	14.79
*Source: Nielsen and Oarwin, Western Livestock Journal, January 1991; Updated by personal communication with Dr. Nielsen, March 1991.				

The Value of Public Land Grazing Permits and the Grazing Fee Dilemma

L. Allen Torell, E. Tom Bartlett and Frederick W. Obermiller*

Abstract. Western ranchers are currently paying fair market value for grazing on public lands through the grazing fee, higher non-fee grazing costs, and investments to buy range improvements and the grazing permit. Past grazing fee policies have contributed to the significant value of grazing permits and current ranchers have paid this cost. Recognition or lack of recognition of permit cost when setting grazing fee policy lies at the heart of the controversy.

A change in policy can enhance or diminish the value of capital assets. Some entrepreneurs have prospered while others have lost substantial amounts when rules and regulations changed. The chance that policy might change is always a risk, but legal entitlement when public policy does change is not clear.

This uncertainty will be clarified somewhat when the U.S. Supreme Court hears the case of *Lucas v. South Carolina Coastal Council*. This legal dispute involves the entitlement of compensation when new environmental regulations prohibited a landowner from building on a beach front area. The case is seen as pivotal in the conflict between those pushing for tighter environmental control and regulation and those who want to strengthen and reassert private property rights (Linden 1992).

Resolution of the South Carolina case is expected to help determine the entitlements of those using public lands, even though public lands belong to the taxpayers, not the users. For example, are public land users entitled to compensation if traditional pro-

ductive uses of these lands are eliminated to protect riparian habitat and endangered species, or to make room for an expanding wildlife population? Are ranchers entitled to compensation if higher grazing fees erode the value of their public land grazing permits? These questions have yet to be answered either by Congress or by the courts.

The public land conflict will ultimately be resolved through political and legal processes. However, documentation of the value (cost) of public land grazing permits, and the potential change in that value as public land policy is altered, is an economic question that can be answered without judgment as to legal entitlements.

In this paper, we estimate the value of public land grazing permits and demonstrate the linkage between permit value and grazing fees, using an illustrative case study. A substantial change in grazing fee policy on New Mexico State trust lands during 1988 (NMSLO 1988) provided a clear indication of what might happen to the value of federal land grazing permits if grazing fees are substantially increased. This example is highlighted, and an estimate is made of the decrease in permit value that may occur if the fees paid to graze public lands are substantially increased.

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The Value of Public Land Grazing Permits and the Grazing Fee Dilemma



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permits value, but rather, public lands add to the resource base of western ranches, meeting seasonal forage demands and making the ranch an economic unit. Yet, it is not why grazing permits have value that is important. Rather, it is the fact that grazing permits do have value and the legal recognition or lack of recognition of this value in setting grazing fee policy that lies at the heart of the grazing fee controversy.

Grazing Permit Values

It is well established that public land grazing permits have value. Numerous studies, including Collins (1983), Fowler and Gray (1981), Martin and Jefferies (1966), Torell and Fowler (1986) and Torell and Doll (1991) have documented that public land grazing permits contribute to the value of public land ranches.

Estimates of permit value have been made at various points in time for the western states. Table 1 gives 1983 estimates of value presented for each of the western states in a grazing fee review and evaluation report presented to Congress in 1986 (USDA/USDI 1986, p. 50). Estimated values are highest in Arizona and New Mexico where yearlong grazing is common, and in Nebraska where rangeland is relatively productive and public land holdings are minimal.

Only in New Mexico, where periodic studies have been conducted to estimate ranch values and grazing permit values, is the historical trend in grazing permit value documented. These estimates were summarized by Torell and Doll (1991) in a study to determine how changing public land policy has influenced permit values, and are reproduced here as Figure 1.

The value of public land grazing permits followed the general trend of ranch values, peaking in value during 1982 and declining sharply after this. Recent New Mexico ranch sales indicate permit values during 1991

were at about the same \$40 to \$60/AUM level estimated during 1988-89. Similarly, USDA estimates little recent change in farm and ranch values in other western states (USDA-ERS 1991).

What Will Happen If Grazing Fees Go Up?

Recent increases in grazing fees on New Mexico state trust lands provides a clear indication of what will happen to the value of public land grazing permits if grazing fees are substantially increased. Controversy about New Mexico state land grazing fees started in the early 1980s when the New Mexico State Land Office (NMSLO) proposed to increase grazing fees from \$1.60/AUM to \$2.67/AUM. This proposal was challenged in court and not implemented (*Perez et al. vs. Baca, State Land Commissioner, SF 85-1000*).

Under a new administration elected in 1986, grazing fees increased to \$1.87/AUM in 1987. NMSLO then funded studies to investigate the feasibility of adding an annual adjustment factor to the fee calculation, similar to that used in the federal PRIA fee formula. A new fee formula was implemented with the 1988 fee year. This formula included an annual adjustment factor that uses the PRIA indices of the forage value index (FVI), prices paid index (PPI) and beef cattle price index (BCPI) to adjust the annual charge rate. Most important, the base fee increased substantially and a clear message was sent to state land ranchers that the NMSLO planned to fulfill fiduciary responsibilities to maximize state land revenue. NMSLO grazing fees increased to \$2.35/AUM in 1988, \$3.13/AUM in 1989, \$3.16/AUM in 1990 and to \$3.46/AUM in 1991.

The increased grazing fees caused a substantial decrease in the value of state land grazing permit values, just as the cost capitalization model of permit value said it

Grazing Fees and Grazing Permit Values

Settlement was encouraged in the late 1800s by various acts such as the Homestead Act of 1862. In the West, where the productivity of the land was less, national policy never provided enough land for economical livestock enterprises. However, people did homestead more productive land and land with permanent water sources. Ranch headquarters, crops and hay fields were established on homestead lands and forage from unadministered public and state trust lands provided the forage balance needed for viable ranch units. Later, when ranches sold or were passed on to heirs, they did not consist of only privately-owned deeded acres; ranch units included the capacity of all lands grazed by livestock. New owners paid for the entire ranch, whether the productive resources were on private or public lands. The cost of grazing unadministered lands was part of the capitalized ranch value and, as such, was paid for as a long-term investment. A market was established for what was to become federal grazing permits.

Grazing fees were introduced by the U.S. Forest Service (USFS) in 1906 and by the Grazing Service [predecessor to the Bureau of Land Management (BLM)] in 1936. This change in policy, and subsequent regulations, partially converted the cost of leasing federal forage from a long-term ranch investment cost to an annual variable cost. As fees increased over time, either through administrative action or legislation, the cost structure to permittees changed. More of the value from public land grazing has been captured in the annual fee and less of it reflected in the capitalized investment in the ranch¹.

The negative relationship between grazing fees and the investment value of grazing permits formed the basis of a theoretical economic model explaining permit value presented by Roberts (1963). Using the

traditional production economic model of optimal input use, Roberts (1963) showed that any difference between the value of public land forage (marginal value product) and the fee and non-fee costs of grazing public lands (marginal factor costs) should theoretically be capitalized into a permit value. This cost capitalization, coupled with the expectation that a reasonable grazing fee would continue, has contributed to the market value of public land grazing permits².

The productive capacity of public lands has been enhanced through federal and privately funded range improvement programs, and this has also contributed to the market value of public land ranches. However, the market value of these improvements, whether on private or public lands, should also be inversely related to grazing fees. As fees go up, ranch buyers cannot afford to pay as much for forage or for range improvements that enhance range-land production. Thus, it would be expected that an increase in grazing fees would decrease the incentive for private investment in improvements located on public range-land.

Public land ranchers contend it is not a capitalized cost advantage that gives grazing

¹The diminished value of public land grazing permits with higher grazing fees has not been widely observed on an empirical basis. Logical reasons for this are that past increases in grazing fees have been minimal relative to the total value of public land forage and because ranch values, including public land grazing permit values, appreciated substantially until about 1982. It is generally believed that during the late 1970s and early 1980s ranch values were higher than what was justified based on the productive value of most ranches. Expectations of continued land appreciation contributed to the upward movement of real estate values, including farm and ranch values.

²Establishment of a market value because of underpricing is not unique to grazing permits. Similar market values have been observed for liquor licenses, permits for white water rafting, outfitting and guide service licenses, transportation permits (taxis) and crop commodity allotments.

Table 1. Value of public land grazing permits reported by USDA/USDI (1986).

State	BLM/USFS AUM's	Low	High	Average
\$ /AUM				
Arizona	1,804,369	\$ 75	\$300	\$114
California	944,597	35	92	53
Colorado	1,597,434	50	200	75
Idaho	2,747,787	30	150	60
Kansas ¹	120			
Montana	1,837,335	47	133	76
Nebraska	85,334	120	150	140
Nevada	2,743,959	33	45	40
New Mexico	2,880,010	35	348	103
North Dakota	261,363	50	60	56
Oklahoma ¹	475			
Oregon	1,442,014	56	60	56
South Dakota ¹	95,814			
Utah	2,425,300	42	100	50
Washington ¹	79,315			
Wyoming	2,594,592	45	75	49
TOTAL	21,539,818			
Weighted Average				68

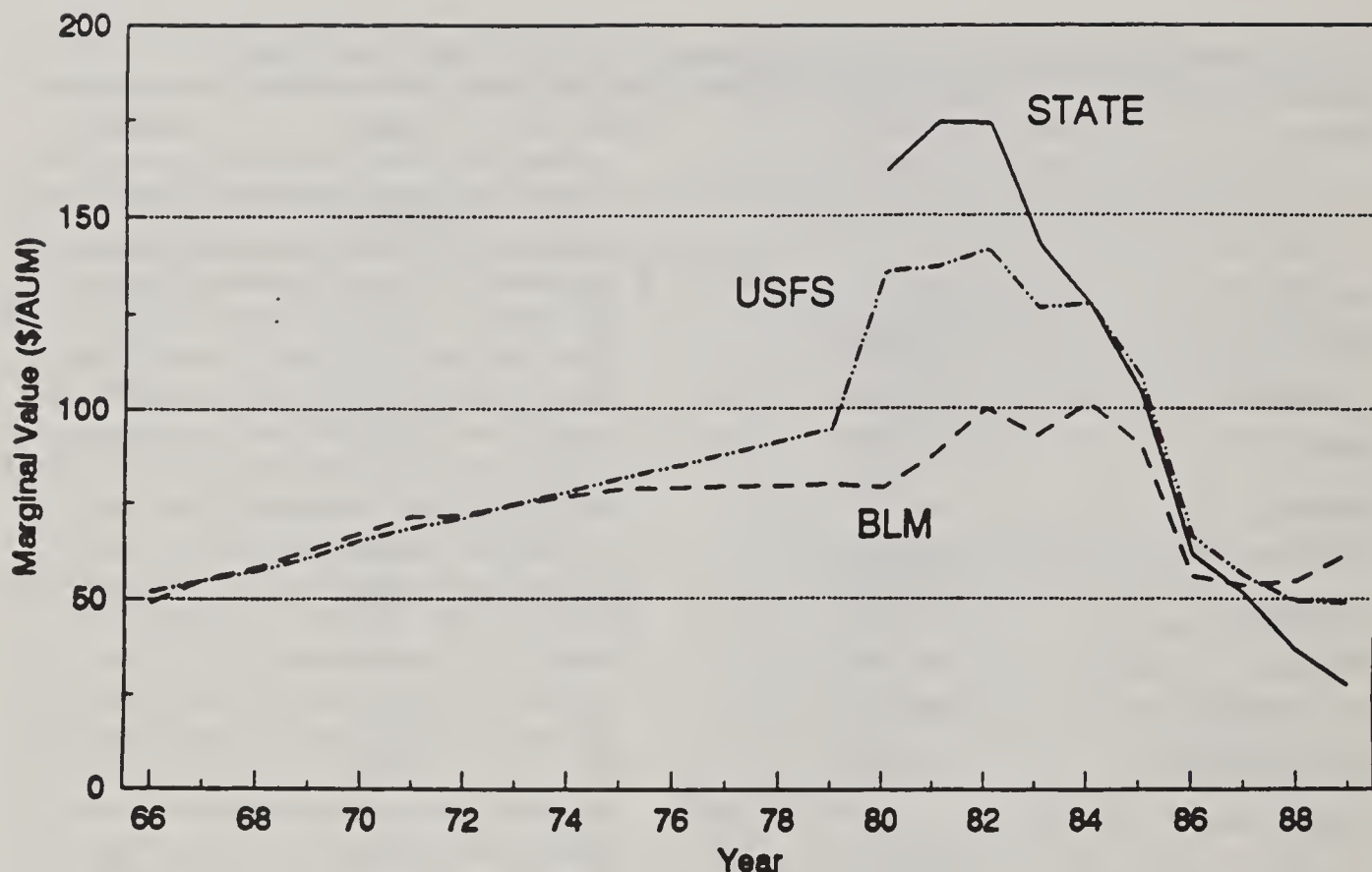
¹/Not available or limited observations.

would. Torell and Doll (1991) estimated, with 1988-89 conditions, the value of New Mexico state land leases diminished relative to federal grazing permits (Figure 1). Each \$1/AUM increase in grazing fees was estimated to decrease the leasehold value of the permit by about \$30/AUM (implying a capitalization rate of 3.3%). A grazing fee of about \$3.30/AUM would eliminate the value of the grazing permit according to Torell and Doll (1989).

With the doubling of grazing fees between 1986 and 1989, state land grazing

revenues nearly doubled, from \$3.3 million in 1987 to \$6.5 million in 1989 and 1990. Few if any ranchers stopped leasing state lands because of the higher fees (personal communication, Dwain Glidewell, NMSLO, 1991). But, the value of the state land leases held by ranchers was significantly decreased.

The value of western ranches, both deeded and public land ranches, decreased sharply during the 1980s after peaking in value during 1982³. Torell and Doll (1991) estimate the marginal contribution of state land AUMs to the value of New Mexico



Source: Torell and Doll (1991)

Figure 1. Trend of permit values in New Mexico , \$/AUM, 1966-89.

ranches peaked at \$174/AUM in 1982. This value fell to only \$29/AUM by 1988, with approximately \$50/AUM of this value decline attributed to the higher grazing fees paid on state lands. Another important factor was the realization that higher grazing fees were going to continue.

With the increase in grazing fees from \$1.60/AUM in 1986 to \$3.16/AUM in 1990, the annual transfer of wealth from ranchers to NMSLO trust beneficiaries was about \$3.1 million for the total 2 million AUMs

leased by the land office. The capitalized value of this transfer of wealth in future years is more than \$94 million.

The educational institutions that receive income from the NMSLO as trust beneficiaries obviously gained with higher grazing fees. Ranchers lost with the change in policy. Annual ranch production costs were increased, but just as important, the value of ranches was substantially diminished. Lenders have reassessed the amount of money they will loan against diminished equity positions, and the value of many New Mexico ranches is now below what many ranch owners originally paid for the ranch.

Implications for Public Land Grazing Fees

Those pushing for higher grazing fees often cite the existence of permit value as

³/It is generally believed that the decline in farm and ranch values was a necessary realignment after the upward movement of land values during the 1970s. Because of continued anticipation of real growth in land values, these values were inflated relative to the productive potential of most western ranches.

obvious proof that grazing fees are not high enough and that they should be substantially increased. Yet, this is one of those cases where what seems obvious is not necessarily true when all the facts are known. The dilemma is, to acquire the privilege to graze on public lands, 85 to 90% of the current holders of public land grazing permits have had to buy the permit(s) they now hold (Nielsen and Workman 1971, Torell et al. 1988). Permit cost is a significant and real cost for those grazing public rangelands.

Public land ranchers are paying fair market value for forage through grazing fees, non-fee grazing costs and investments to buy public land grazing permits. If grazing fees are increased to levels comparable to private land lease rates, as proposed by recent Congressional legislation, the total cost current ranchers will be forced to pay will exceed the market value of the forage. With higher grazing fees, permit values will be eroded, with substantial wealth transferred from the private sector (ranchers) to the public sector (federal land agencies). Obviously, the fairness of this transfer of wealth is of key concern. Other equity issues include the perceptions that 1) the federal government is not currently collecting full

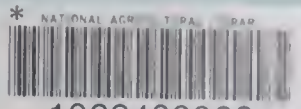
market value for grazing on public lands and 2) public land ranchers are not credited for the investments and improvements they have made that benefit wildlife and other multiple use objectives.

The problem comes when the rules are changed in midstream. Public land ranchers bought grazing permits with the expectation that past policies would continue. These ranchers stand to lose substantial wealth if grazing fees are increased. But, to continue with past policies means that part of the economic value of public land grazing will continue to be allocated to ranchers when ranches are bought and sold. We must wait for Congressional legislation and the legal system to decide which of these alternatives will be implemented, and to interpret what is fair. With this decision, the beneficiaries of this important policy decision will be defined and legal entitlements will be clarified.

The South Carolina case to be heard by the U.S. Supreme Court is expected to be an important decision defining property rights and legal entitlements when public land policy changes. However, given the past history of the grazing fee controversy it can be anticipated that this policy issue will continue well into the 21st century.

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